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NAVAL SHIP ENGINEERING CENTER HYATTSVILLE MD
PROPERTIES OF COMBINED ALUMINUM TEE EXTRUSION AND PLATE, (U)
AUG 76 P WITHERELL, E ARONNE

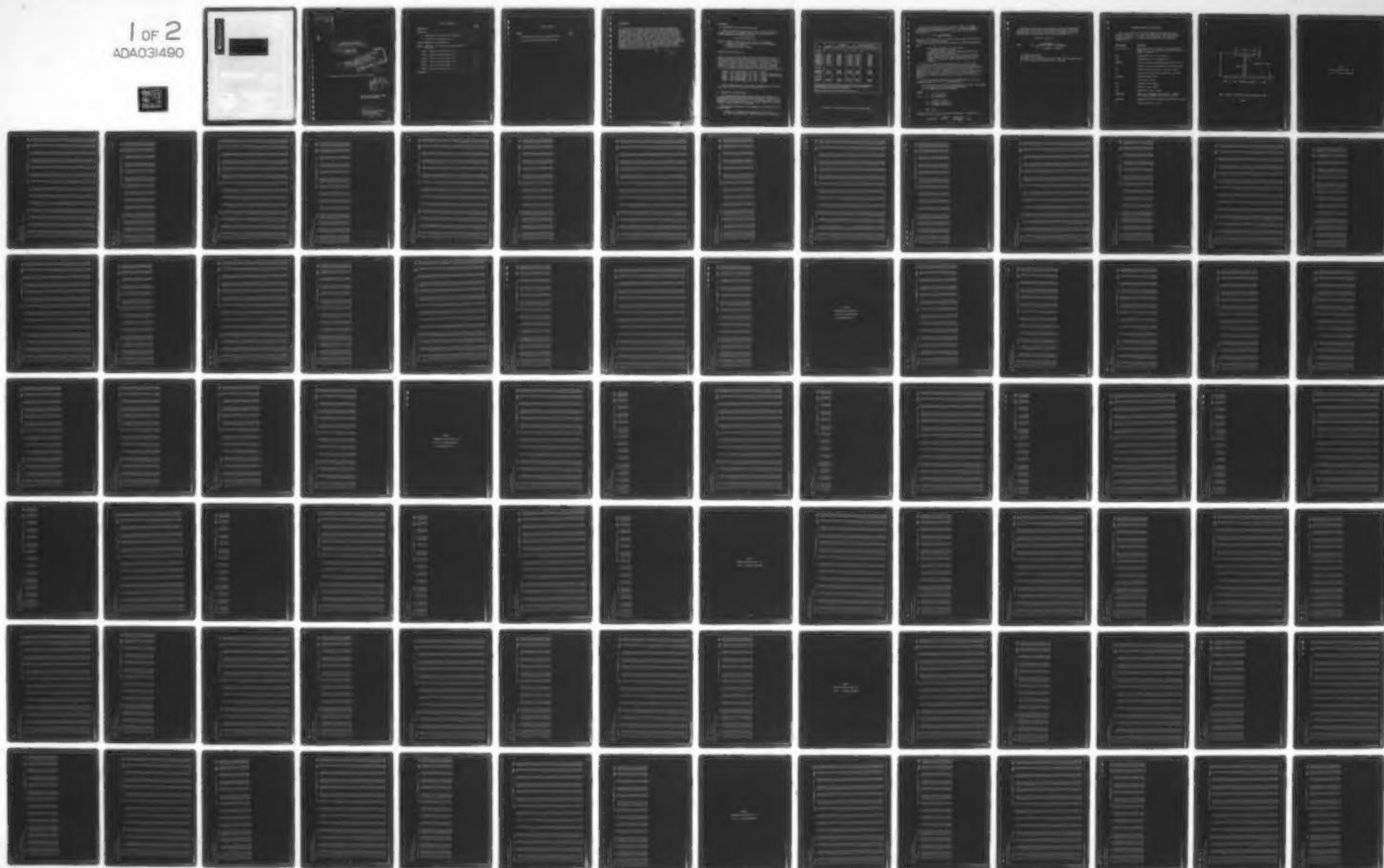
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⑥ PROPERTIES OF COMBINED
ALUMINUM TEE EXTRUSION AND PLATE

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Prepared by
Peter Witherell
Eugene Aronne

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NAVAL SHIP ENGINEERING CENTER
HYATTSVILLE, MARYLAND

Robert S. Johnson
Robert S. Johnson
Branch Head, SEC 6114

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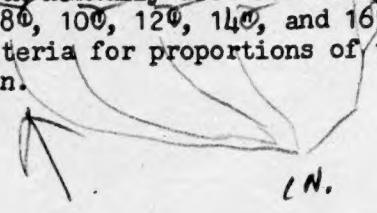
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INTRODUCTION

→ The design information contained in this report was developed primarily for use in the SES Design Computer Program of NAVSEC 6114P1. Its publication as a separate report provides ship structural designers with tabulated properties for small non-standard aluminum T extrusions acting in combination with aluminum plate. The T extrusions range from .5 - 9.5 lb/ft and plating is in standard thicknesses from 1/8" to 1". The extrusions are designed primarily for use as stiffeners in lightweight aluminum structures such as the SES. Since stiffener spacings are typically less than the 35t effective plating width normally used for design in aluminum, the report includes tables for 80, 100, 120, 140, and 160 effective widths in addition to 35t. Criteria for proportions of the T extrusions are presented in the discussion.



1N.

DISCUSSION

A. Determination of Effective Plating Width

When the plate is considered to be acting in combination with a T-beam, selection of an effective width of plating is based on the following formula from DDS 1100-3 (Ref. 3).

$$b_{\text{eff}} = \left(2 \sqrt{E/\sigma_y} \right) t$$

Where E = modulus of elasticity (10.3×10^6 psi for aluminum)
 σ_y = tensile yield strength (33,000 psi for 5456 - H117 prime material, see Figure 1)
 t = thickness of plate in inches

Using this formula, $b_{\text{eff}} = 35t$.

However, this formula only applies when $35t$ is less than the spacing of the aluminum beams. Consequently this report incorporates 6 tables using effective plating widths corresponding to $35t$ and also to specific cases where effective width is less than $35t$. In Tables 2 and 3, a maximum flange width is specified to eliminate beams which would give less than 4" clearance between flanges. The 4" clearance is assumed to be an approximate minimum clearance for fabrication purposes (See Ref. 5)

- Table 1: Eff. Plating Width = $35t$, $1/8"$ - 1" plate
- Table 2: Eff. Plating Width = 8", $1/4"$ - 1" plate, flange width $\leq 4"$
- Table 3: Eff. Plating Width = 10", $5/16"$ - 1" plate, flange width $\leq 6"$
- Table 4: Eff. Plating Width = 12", $3/8"$ - 1" plate
- Table 5: Eff. Plating Width = 14", $7/16"$ - 1" plate
- Table 6: Eff. Plating Width = 16", $1/2"$ - 1" plate

Plating thickness used are for standard aluminum plate ($1/8"$, $3/16"$, $1/4"$, $5/16"$, $3/8"$, $7/16"$, $1/2"$, $5/8"$, $3/4"$, $7/8"$, 1").

B. Proportions of Tee Extrusions

In accordance with structural design practice, the dimensions of the extruded Tees presented here have been proportioned to preclude local buckling of the flange and web for 5456 - H111 aluminum shapes. Since this alloy has the highest strength of the extruded materials in Figure 1, it gives the most conservative proportions.

The following limitations have been imposed on the dimensions of the extruded beams:

- The ratio of web depth to web thickness does not exceed 43.
- The ratio of flange width to flange thickness does not exceed 20.

Alloy	Ultimate Strength	Yield Strength		Allowable Working Stress ¹	
		Prime Material	Welded	Shear	Tension and Compression
<u>Plate:</u>					
5052-H34	34,000	26,000	20,000	10,000	16,000
5086-H32	40,000	28,000	22,000	11,000	18,000
5086-H116	40,000	28,000	22,000	11,000	18,000
5086-H117	40,000	28,000	22,000	11,000	18,000
5454-H34	39,000	29,000	16,000	8,000	14,000
5456-H321	46,000	33,000	26,000	13,000	21,000
5456-H116	46,000	33,000	26,000	13,000	21,000
5456-H117	46,000	33,000	26,000	13,000	21,000
<u>Shapes</u>					
5086-H111	36,000	21,000	16,000	8,000	14,000
5454-H111	33,000	19,000	16,000	8,000	14,000
5456-H111	42,000	26,000	21,000	10,000	17,000
<u>Tubing</u>					
5086-H32	40,000	28,000	22,000	11,000	18,000
5086-0	35,000	14,000	14,000	8,000	13,000

¹These values should be checked against section 9110-0-a of the General Specifications for Ships of the U. S. Navy or the detail specifications. These values are not to be used for compressive loads when stability controls.

NOTE: Modulus of elasticity (Young's modulus) 10,300,000 p. s. i.

Figure 1. Specification Properties of Aluminum Alloys.

The web b/t restriction is based on criteria taken from A Guide for the Analysis of Ship Structures (Ref. 4). A theoretical solution of critical compressive stress in the elastic region can be presented in the form

$$\sigma_c = \frac{K_c \pi^2 E}{12(1-\mu^2) (b/t)^2}$$

in which the coefficient K_c is a function of plate aspect ratio, loading conditions, and boundary conditions.

To define K_c for our web buckling problem, the following assumptions apply:

- The web has an aspect ratio greater than 2.
(generally long and slender)
- The loading condition, used as a limiting case for design, will be uniform edge compression.
- The boundary conditions for the web will be represented as simply supported at the flange and partially fixed at the plate due to the weaker welded material along the plate boundary.

In accordance with the above assumptions, $K_c = 5.2$ is used here. If the web were considered to be fully fixed at the plate we would have $K_c = 5.5$ (Ref. 4). If the web were considered to be only simply supported at the plate, $K_c = 4.0$ (Ref. 3 and Ref. 4). The use of $K_c = 5.2$ represents a 20% reduction in fixity going from a fixed to simply supported boundary, as a result of welded yield for 5456 - H111 aluminum shapes being 20% less than prime material yield (21,000 psi vs. 26,000 psi, see Figure 1)

To solve the critical buckling stress equation for b/t , we use the following properties for 5456 - H111 aluminum shapes:

$$\begin{aligned}\sigma_c &= 26,000 \text{ psi (yield strength of prime material for 5456 - H111 shapes).} \\ E &= 10.3 \times 10^6 \text{ psi (elastic modulus for aluminum).} \\ \mu &= .33 \text{ (Poisson's ratio for aluminum).}\end{aligned}$$

Solving:

$$\text{web } b/t = \sqrt{\frac{\pi^2 E K_c}{12(1-\mu^2) \sigma_c}}$$

$$b/t = \sqrt{\frac{\pi^2 (10.3 \times 10^6) 5.2}{12(1-.33^2) 26000}}$$

$$b/t = 43.6$$

Proportions for the flange b/t are given by DDS 1100 - 3 (Ref. 3) as:

$$\text{flange } b/t = \sqrt{E/F_y} = \sqrt{\frac{10.3 \times 10^6}{26000}} = 19.9$$

Permissible beam spans to prevent flange tripping vary, depending on flange width and the ratio of flange width/beam depth. In the last column of each of the tables in this report, the maximum span is given for each beam. The maximum span is defined by DDS 1100 - 3 as :

$$\text{max. span} = K_8 \times b_F$$

where

$$K_8 = \frac{1.283 \sqrt{E/F_y}}{\sqrt{1 + .2(d/b_F) - .128(b_F/d)^2}}$$

d = beam depth, inches

b_F = flange width, inches

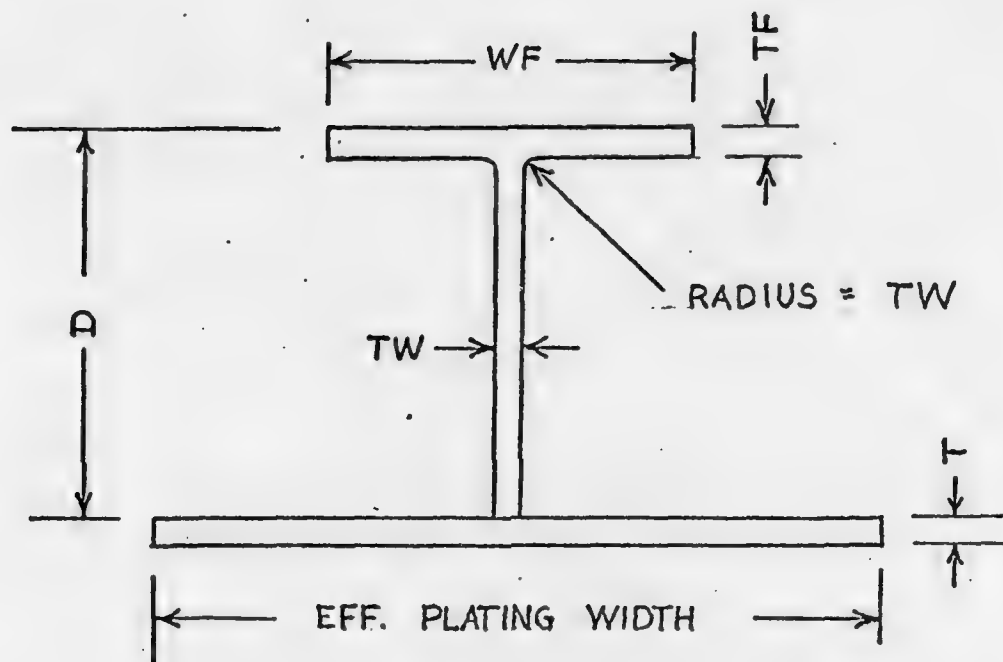
F_y = 26,000 psi (prime material yield for 5456 - H111 aluminum shapes).

E = 10.3 x 10⁶ psi (elastic modulus for aluminum).

SYMBOL NOMENCLATURE AND DEFINITION

The section properties of combined aluminum Tee extrusion and plate are given in Tables 1 - 6. These tables apply to the case where the plate acts as a flange for the attached Tee (see Figure 2). For each plating thickness in Tables 1 - 6, the Tees are listed in order of increasing weight (lb./ft.).

<u>Nomenclature</u>	<u>Definition</u>
Nom. D x lb./ft.	Nominal depth of Tee rounded up to nearest inch and weight (lb./ft.) for Tee alone, based on 169 lb./ft. ³ density of aluminum
ZPL	Section modulus to the plate, inch ³
ZFL	Section modulus to the flange, inch ³
INERTIA	Moment of inertia for combined Tee and plate, inch ⁴
R	Radius of gyration for combined Tee and plate, inches
YP	Distance from neutral axis to the plate, inches
YF	Distance from neutral axis to flange of Tee, inches
Tee AREA	Area of Tee only, inch ²
D	Depth of Tee, inches
TW	Thickness of web, inches
WF	Width of flange, inches
TF	Thickness of flange, inches
SHEAR AREA	Shear area of combined beam and plate = (depth of Tee + plate thickness) x web thickness, inches ²
MAX SPAN	Maximum span for Tee to prevent flange tripping, inches
T	Thickness of plate, inches



NOTE: BEAM WT. INCLUDES RADIUS BETWEEN FLANGE AND WEB.

Figure 2.

TABLE 1

EFFECTIVE PLATING WIDTH = $35t$

$1/8'' - 1''$ PLATE THICKNESSES

35T EFFECTIVE WIDTH
 .125 IN. PLATE (AREA= .55 SQ. IN.)

NUM. C X LB/FT	ZFL	INERTIA	R	YP	YF	AREA	U	BEAM DIMENSIONS TW	WF	TF	SHEAR AREA	MAX. SPAN
2 X .50	.73	.42	.60	.58	1.04	.43	1.500	.125	2.000	.125	.20	53.2
2 X .58	.58	.76	.87	.77	1.35	.49	2.000	.125	2.000	.125	.27	49.3
3 X .65	.76	1.20	1.07	.97	1.05	.55	2.500	.125	2.000	.125	.33	47.3
3 X .72	.96	1.67	1.27	1.18	1.25	.62	3.000	.125	2.000	.125	.39	45.8
3 X .72	.90	1.41	1.10	1.06	1.57	.62	2.500	.125	2.500	.125	.33	61.7
3 X .80	1.12	2.08	1.30	1.27	1.85	.68	3.000	.125	2.500	.125	.39	59.5
4 X .87	1.36	2.90	1.50	1.49	2.13	.74	3.500	.125	2.500	.125	.45	57.9
4 X .94	1.61	3.68	1.70	1.71	2.41	.80	4.000	.125	2.500	.125	.52	56.6
5 X 1.02	1.87	5.03	1.89	1.94	2.69	.87	4.500	.125	2.500	.125	.58	55.6
5 X 1.09	2.14	6.34	2.07	2.16	2.96	.93	5.000	.125	2.500	.125	.64	54.6
6 X 1.13	2.37	4.05	1.75	1.36	2.10	.97	4.000	.125	3.000	.160	.52	70.1
6 X 1.16	3.28	7.85	2.20	2.39	3.23	.99	5.500	.125	2.500	.125	.70	53.7
5 X 1.21	2.72	5.99	1.95	2.21	2.42	1.03	4.500	.125	3.000	.160	.58	60.7
5 X 1.28	3.68	7.24	2.14	2.45	2.68	1.09	5.000	.125	3.000	.160	.64	67.5
5 X 1.35	3.45	9.20	2.34	2.09	2.93	1.15	5.500	.125	3.000	.160	.70	60.5
6 X 1.67	2.49	5.92	1.70	2.38	1.75	1.36	4.000	.125	4.000	.220	.52	98.7
5 X 1.67	2.86	7.02	1.97	2.06	1.90	1.42	4.500	.125	4.000	.220	.58	96.4
5 X 1.67	4.01	11.82	2.45	2.35	3.18	1.43	6.000	.160	3.000	.160	.98	65.5
5 X 1.77	3.25	9.56	2.17	2.34	2.19	1.48	5.000	.125	4.000	.220	.84	94.5
7 X 1.77	4.43	14.10	2.83	3.19	3.43	1.51	6.500	.160	4.000	.220	1.06	64.6
5 X 1.82	3.66	11.70	2.37	3.22	2.41	1.55	5.500	.125	4.000	.220	.70	93.0
7 X 1.86	4.87	16.70	2.80	3.44	3.69	1.59	7.000	.160	3.000	.160	1.14	63.8
7 X 1.88	4.17	13.35	2.49	3.20	2.92	1.51	6.000	.160	3.500	.190	.98	78.4
7 X 1.90	4.01	15.90	2.87	3.46	3.16	1.59	8.000	.160	3.500	.190	1.06	77.4
7 X 2.07	5.37	18.85	2.86	3.72	3.41	1.77	7.000	.160	3.500	.190	1.14	70.4
5 X 2.13	4.29	14.81	2.50	3.45	2.67	1.82	6.000	.160	4.000	.220	.98	91.6
7 X 2.22	4.76	17.70	2.89	3.72	2.90	1.90	8.500	.160	4.000	.220	1.06	90.4
7 X 2.32	5.24	20.09	2.88	3.99	3.14	1.98	7.000	.160	4.000	.220	1.14	89.3
9 X 2.50	4.44	16.81	2.48	3.79	2.34	2.18	8.000	.160	5.000	.250	.98	119.0
7 X 2.65	4.95	20.69	2.87	4.08	2.55	2.20	6.500	.160	5.000	.250	1.06	117.3
7 X 2.75	5.43	23.71	2.87	4.37	2.76	2.34	7.000	.160	5.000	.250	1.14	115.8
8 X 3.10	6.27	20.80	3.00	4.59	3.03	2.64	7.500	.190	5.000	.250	1.45	114.5
9 X 3.21	8.05	33.37	3.39	4.87	3.25	2.74	8.000	.190	5.000	.250	1.54	113.3
9 X 3.28	4.50	19.07	2.39	4.18	1.94	2.80	6.000	.160	5.000	.313	.98	148.0
7 X 3.38	5.07	22.83	2.58	4.50	2.12	2.88	6.500	.160	6.000	.313	1.06	145.0
7 X 3.47	5.00	20.99	2.77	4.92	2.31	2.96	7.000	.160	6.000	.313	1.14	143.5
8 X 3.82	6.51	32.09	2.94	5.35	2.56	3.26	7.500	.190	6.000	.313	1.45	141.8
8 X 3.94	7.13	38.15	3.13	5.35	2.77	3.35	8.000	.190	6.000	.313	1.54	140.2
9 X 4.34	8.21	45.72	3.28	5.57	3.06	3.70	8.500	.220	6.000	.313	1.90	133.7
10 X 4.47	8.91	52.25	3.46	5.96	3.26	3.81	9.000	.220	6.000	.313	2.01	137.4
9 X 4.60	9.04	59.30	3.84	6.15	3.47	3.92	9.500	.220	6.000	.313	2.12	136.2
9 X 4.76	8.33	48.13	3.23	5.78	2.84	4.00	8.500	.220	6.000	.375	1.90	138.7
9 X 4.99	9.05	55.06	3.42	6.08	3.04	4.17	9.000	.220	6.000	.375	2.01	137.4
10 X 5.02	9.79	62.54	3.60	6.39	3.24	4.28	9.500	.220	6.000	.375	2.12	136.2
9 X 5.42	8.51	51.07	3.10	6.07	2.55	4.32	8.500	.220	7.500	.375	1.90	183.4
10 X 5.50	11.18	73.66	3.75	6.39	3.54	4.68	10.000	.250	6.000	.375	2.53	135.0
9 X 5.55	9.26	59.14	3.35	6.39	2.74	4.73	9.000	.220	7.500	.375	2.01	178.5
11 X 5.54	12.03	82.77	3.93	6.48	3.75	4.81	10.500	.250	6.000	.375	2.66	134.0
10 X 5.68	10.03	67.23	3.53	6.71	2.92	4.84	9.500	.250	7.500	.375	2.12	176.8
11 X 5.79	12.91	92.52	4.11	7.17	3.96	4.93	11.000	.250	6.000	.375	2.78	132.9

351 EFFECTIVE WIDTH

.125 IN. PLATE (AREA= .55 SQ. IN.)

NUM.	D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	D	BEAM DIMENSIONS	WF	TF	SHEAR AREA	MAX. SPAN
10	X 5.92	11.33	23.09	76.97	3.71	6.79	3.33	5.05	10.000	.250	5.000	.438	2.53	135.0
11	X 6.07	12.20	24.49	86.54	3.89	7.39	3.53	5.17	10.500	.250	5.000	.438	2.66	134.0
12	X 6.16	13.10	25.91	90.79	4.07	7.39	3.74	5.25	11.000	.250	5.000	.438	2.53	175.2
13	X 6.21	12.36	26.19	89.21	3.88	7.22	3.41	5.30	10.500	.250	7.500	.375	2.78	132.9
14	X 6.30	13.27	27.08	99.77	4.06	7.52	3.60	5.37	10.500	.250	7.500	.375	2.66	173.8
15	X 6.45	16.86	29.43	130.33	4.37	7.76	4.37	5.50	11.000	.250	7.500	.375	2.78	172.4
16	X 7.38	17.92	31.42	144.37	4.54	8.04	4.59	6.29	12.000	.313	5.000	.438	3.80	131.0
17	X 7.50	17.04	31.74	134.43	4.37	7.89	4.24	6.49	12.000	.313	7.500	.375	3.95	130.1
18	X 7.80	18.17	33.40	148.58	4.54	8.18	4.45	6.52	12.500	.313	7.500	.375	3.80	169.9
19	X 7.98	18.18	34.14	149.74	4.52	8.24	4.39	6.80	12.500	.313	6.000	.500	3.95	168.8
20	X 7.39	19.34	35.08	163.60	4.72	8.46	4.66	6.81	13.000	.313	7.500	.375	3.95	130.1
21	X 8.16	19.35	35.87	164.36	4.69	8.53	4.90	6.95	13.000	.313	6.000	.500	4.11	167.7
22	X 8.17	20.53	36.78	179.52	4.89	8.74	4.88	6.90	13.500	.313	7.500	.375	4.11	129.2
23	X 8.35	20.55	37.63	181.10	4.86	8.81	4.81	7.11	13.500	.313	6.000	.500	4.26	166.7
24	X 8.41	17.40	38.30	143.69	4.52	8.23	3.89	7.16	12.000	.313	8.000	.438	4.26	128.4
25	X 8.59	18.03	38.79	158.90	4.79	8.53	4.10	7.32	12.500	.313	8.000	.438	3.80	183.2
26	X 6.78	19.84	40.71	175.06	4.67	8.62	4.30	7.48	13.000	.313	8.000	.438	3.95	182.0
27	X 8.96	21.08	42.05	192.18	4.85	9.12	4.51	7.53	13.500	.313	8.000	.438	4.11	180.8
28	X 9.97	17.86	40.32	148.93	4.26	8.43	3.89	7.54	12.000	.313	8.000	.500	4.26	179.7
29	X 9.15	18.86	42.38	164.79	4.44	8.74	3.89	7.80	12.500	.313	8.000	.500	3.80	183.2
30	X 9.34	20.09	44.47	181.64	4.62	9.04	4.08	7.95	13.000	.313	8.000	.500	3.95	162.0
31	X 9.52	21.35	46.58	199.49	4.80	9.34	4.28	8.11	13.500	.313	8.000	.500	4.11	160.8
32	X 9.52	21.35	46.58	199.49	4.80	9.34	4.28	8.11	13.500	.313	8.000	.500	4.26	179.7

35T EFFECTIVE WIDTH

.183 IN. PLATE (AREA= 1.23 SQ. IN.)

NUM.		J X LB/FT		ZPL	ZFL	INERTIA	N	YP	YF	AREA	BEAM DIMENSIONS		W ²	TF	SHEAR AREA	MAX. SPAN
J X	LB/FT	ZPL	ZFL	INERTIA	N	YP	YF	AREA	U	TM	W ²	TF	SHEAR AREA	MAX. SPAN		
2 X	.50	1.37	.43	.26	.50	.41	1.28	.43	1.500	.125	2.000	.125	.21	53.2		
2 X	.58	1.92	.62	1.02	.77	.53	1.06	.49	2.000	.125	2.000	.125	.27	49.3		
3 X	.65	2.49	.82	1.65	.96	.66	2.02	.55	2.500	.125	2.000	.125	.34	47.3		
3 X	.72	3.05	1.03	2.46	1.15	.80	2.38	.62	3.000	.125	2.000	.125	.40	45.8		
3 X	.80	3.58	.96	1.88	1.01	.73	1.90	.62	2.500	.125	2.500	.125	.34	61.7		
4 X	.87	3.16	1.21	2.78	1.21	.88	2.31	.68	3.000	.125	2.500	.125	.40	59.5		
4 X	.94	3.74	1.47	3.86	1.40	1.04	2.65	.74	3.500	.125	2.500	.125	.46	57.9		
5 X	1.02	4.33	1.74	5.20	1.60	1.20	2.49	.80	4.000	.125	2.500	.125	.52	56.6		
5 X	1.09	4.93	2.03	6.74	1.79	1.37	3.32	.87	4.500	.125	2.500	.125	.59	55.6		
5 X	1.13	4.56	2.33	8.51	1.99	1.54	3.05	.93	5.000	.125	2.500	.125	.65	54.6		
6 X	1.21	5.16	2.69	6.36	1.71	1.41	2.77	.97	4.000	.125	3.000	.160	.52	70.1		
6 X	1.28	5.82	3.06	10.53	2.13	1.72	3.97	.99	5.500	.125	2.500	.125	.71	53.7		
6 X	1.35	6.45	3.45	12.79	2.32	1.80	3.69	1.03	4.500	.125	3.000	.160	.59	68.7		
4 X	1.40	4.82	3.68	8.75	2.32	1.38	3.70	1.09	5.000	.125	3.000	.160	.65	67.5		
5 X	1.47	5.49	4.22	11.19	1.84	1.61	2.37	1.15	5.500	.125	3.000	.160	.71	60.5		
5 X	1.57	7.20	4.12	10.21	2.05	2.04	2.65	1.42	4.500	.125	4.000	.220	.52	98.7		
5 X	1.67	6.17	4.77	13.96	2.27	2.25	3.94	1.43	6.000	.160	3.000	.220	.99	65.5		
7 X	1.77	7.88	4.58	19.06	2.27	2.26	2.93	1.48	5.000	.125	4.000	.220	.65	94.5		
6 X	1.86	8.57	5.33	17.06	2.40	2.49	3.20	1.51	6.500	.160	3.000	.220	1.07	64.6		
7 X	1.86	8.57	5.05	22.85	2.85	2.67	4.52	1.55	7.000	.125	3.000	.220	.71	93.0		
5 X	1.90	7.48	5.05	18.09	2.56	2.71	3.69	1.59	6.000	.160	3.500	.190	1.15	83.8		
7 X	2.07	8.91	6.13	26.11	2.76	2.93	3.98	1.59	6.500	.160	3.500	.190	.99	78.4		
5 X	2.13	7.71	6.14	21.10	2.95	2.74	4.26	1.77	7.000	.160	4.000	.220	1.15	77.4		
7 X	2.22	8.44	6.74	25.06	2.83	2.97	3.45	1.82	6.000	.160	4.000	.220	.99	91.6		
7 X	2.32	9.19	7.38	29.41	3.03	3.20	3.79	1.90	7.500	.160	4.000	.220	1.07	89.3		
6 X	2.56	7.97	7.95	24.63	2.89	3.09	3.10	2.18	6.000	.160	5.000	.250	1.15	119.0		
7 X	2.65	8.74	8.73	29.20	2.89	3.34	3.35	2.20	6.500	.160	5.000	.250	1.07	117.3		
7 X	2.75	9.52	9.52	34.22	3.10	3.59	3.60	2.34	7.000	.160	5.000	.250	1.15	115.8		
8 X	3.10	10.58	10.56	40.62	3.24	3.84	3.85	2.64	7.500	.190	5.000	.250	1.46	114.5		
9 X	3.21	11.42	11.41	46.75	3.43	4.09	4.10	2.74	8.000	.190	5.000	.250	1.50	113.3		
5 X	3.28	8.19	10.91	28.95	2.68	3.53	2.65	2.80	6.000	.160	6.000	.313	.99	148.0		
7 X	3.38	9.00	11.95	34.33	2.89	3.81	2.87	2.88	6.500	.160	6.000	.313	1.07	145.6		
7 X	3.47	9.83	12.99	40.22	3.10	4.09	3.10	2.90	7.000	.160	6.000	.313	1.15	143.5		
8 X	3.94	10.87	14.23	47.61	3.46	4.34	3.35	3.26	7.500	.190	6.000	.313	1.46	141.8		
9 X	4.34	13.16	16.09	54.70	3.60	4.66	3.63	3.70	8.500	.190	6.000	.313	1.56	140.2		
9 X	4.47	14.14	17.85	63.93	3.79	4.86	4.06	3.81	9.000	.220	6.000	.313	1.91	138.7		
10 X	4.80	15.14	19.03	72.49	3.79	5.13	4.29	3.92	9.500	.220	6.000	.313	2.02	137.4		
10 X	4.70	13.34	18.52	81.68	3.98	5.40	3.59	4.00	8.500	.220	6.000	.375	1.91	136.2		
9 X	4.89	14.35	20.22	67.97	3.29	5.09	3.81	4.17	9.000	.220	6.000	.375	2.02	137.4		
9 X	4.89	14.35	20.22	77.10	3.78	5.37	4.03	4.28	9.500	.220	6.000	.375	2.13	136.2		
10 X	5.02	15.37	21.34	86.89	3.97	5.05	4.28	4.92	8.500	.220	7.500	.375	1.91	180.4		
9 X	5.42	13.62	22.63	73.87	3.55	5.42	3.20	4.68	10.000	.250	6.000	.375	2.55	135.0		
10 X	5.50	16.96	23.21	99.83	4.11	5.39	4.30	4.68	9.000	.220	7.500	.375	2.02	178.5		
9 X	5.55	14.00	24.15	83.80	3.75	5.72	3.77	4.73	10.500	.250	6.000	.375	2.67	134.0		
11 X	5.84	18.08	25.69	111.36	4.29	6.10	4.23	4.81	9.500	.220	7.500	.375	2.13	176.8		
10 X	5.08	15.71	25.69	94.44	3.94	6.01	3.68	4.81	11.000	.250	6.000	.375	2.80	132.9		
11 X	5.79	19.23	26.01	123.68	4.48	6.43	4.75	4.93	11.000	.250	6.000	.375	2.80	132.9		

3ST EFFECTIVE WIDTH

-188 IV. PLATE (AREA= 1.25 SQ. IN.)

NUM. U X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TM	WF	TF
10 X 5.92	17.18	25.76	104.99	4.09	6.11	4.08	5.05	10.000	.250	6.000	.438
11 X 6.37	16.33	27.29	117.17	4.28	6.39	4.29	5.17	10.500	.250	6.000	.438
10 X 6.16	17.38	27.52	106.52	4.09	6.24	3.94	5.25	10.000	.250	7.500	.375
11 X 6.21	19.53	26.84	130.13	4.47	6.67	4.51	5.30	11.000	.250	5.000	.438
11 X 6.30	18.54	29.13	121.07	4.28	6.53	4.16	5.37	10.500	.250	7.500	.375
11 X 6.45	19.72	30.75	134.43	4.47	6.62	4.37	5.50	11.000	.250	7.500	.375
12 X 7.36	23.58	33.02	167.64	4.72	7.11	5.08	6.24	12.000	.313	6.000	.438
13 X 7.56	24.95	34.73	184.24	4.90	7.38	5.30	6.45	12.500	.313	6.000	.438
12 X 7.52	23.68	35.07	173.13	4.73	7.25	4.94	6.49	12.000	.313	7.500	.375
13 X 7.80	25.28	36.06	190.23	4.91	7.53	5.16	6.55	12.500	.313	7.500	.375
13 X 7.98	25.29	37.73	192.10	4.89	7.60	5.09	6.80	12.500	.313	6.000	.500
13 X 7.49	26.70	36.67	208.29	5.09	7.80	5.39	6.81	13.000	.313	7.500	.375
13 X 8.16	26.72	39.60	210.42	5.07	7.97	5.31	6.95	13.000	.313	5.000	.500
14 X 8.17	28.16	40.50	227.34	5.27	8.17	5.61	6.96	13.500	.313	7.500	.375
14 X 8.35	28.19	41.49	229.74	5.25	8.15	5.54	7.11	13.500	.313	5.000	.500
12 X 8.41	24.43	40.75	186.14	4.71	7.62	4.57	7.16	12.000	.313	8.000	.438
13 X 8.54	25.87	42.79	204.56	4.84	7.91	4.78	7.32	12.500	.313	8.000	.438
13 X 8.78	27.35	44.04	224.03	5.07	8.19	5.00	7.48	13.000	.313	8.000	.438
14 X 8.36	28.05	46.92	244.55	5.25	8.48	5.21	7.53	13.500	.313	8.000	.438
12 X 8.97	24.70	44.56	193.09	4.67	7.94	4.55	7.64	12.000	.313	8.000	.500
13 X 9.15	26.17	46.77	212.93	4.86	8.14	4.55	7.80	12.500	.313	8.000	.500
13 X 9.34	27.68	49.03	233.26	5.04	8.43	4.76	7.95	13.000	.313	8.000	.500
14 X 9.52	29.21	51.26	254.70	5.22	8.72	4.97	8.11	13.500	.313	8.000	.500

35T EFFECTIVE WIDTH

.250 IN. PLATE (AREA= 2.19 SQ. IN.)

NUM. J X	L6/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
									D	TW	WF	IF		
2	X	.50	1.96	.45	.50	.33	1.42	.43	1.500	.125	2.000	.125	.22	53.2
2	X	.58	2.86	.64	.60	.41	1.84	.49	2.000	.125	2.000	.125	.28	49.3
3	X	.65	3.80	.85	.83	.50	2.25	.55	2.500	.125	2.000	.125	.34	47.3
3	X	.72	4.74	1.07	1.01	.60	2.65	.62	3.000	.125	2.500	.125	.41	45.8
3	X	.72	3.99	1.00	.89	.55	2.20	.62	2.500	.125	2.500	.125	.34	61.7
4	X	.80	4.95	1.25	1.06	.66	2.59	.68	3.000	.125	2.500	.125	.41	59.5
4	X	.87	5.92	1.52	1.25	.77	2.98	.74	3.500	.125	2.500	.125	.47	57.9
4	X	.94	6.89	1.81	1.43	.89	3.38	.80	4.000	.125	2.500	.125	.53	56.6
5	X	1.02	7.86	2.12	1.61	1.01	3.74	.87	4.500	.125	2.500	.125	.59	55.6
5	X	1.09	8.84	2.44	1.79	1.14	4.11	.93	5.000	.125	2.500	.125	.66	54.6
5	X	1.13	7.34	2.42	1.57	1.05	3.20	.97	4.000	.125	3.000	.160	.53	70.1
6	X	1.16	9.81	2.78	1.98	1.27	4.48	.99	5.000	.125	2.500	.125	.72	53.7
5	X	1.21	8.36	2.80	1.76	1.19	3.56	1.03	4.500	.125	3.000	.160	.59	68.7
5	X	1.28	9.38	3.20	1.95	1.34	3.91	1.09	5.000	.125	3.000	.160	.66	67.5
5	X	1.35	10.40	3.61	2.15	1.48	4.27	1.15	5.500	.125	3.000	.160	.72	60.5
4	X	1.67	7.89	3.84	1.76	1.39	2.86	1.36	4.000	.125	4.000	.220	.53	98.7
5	X	1.67	8.97	4.41	1.97	1.50	3.19	1.42	4.500	.125	4.000	.220	.59	96.4
6	X	1.67	4.35	4.98	2.33	1.72	4.23	1.43	6.000	.160	3.000	.260	1.00	65.5
5	X	1.74	10.86	4.98	2.18	1.74	3.51	1.48	5.000	.125	4.000	.220	.66	94.5
7	X	1.77	12.49	5.84	2.53	1.89	4.88	1.51	6.500	.160	3.000	.260	1.08	64.6
6	X	1.82	11.18	5.58	2.39	1.92	3.83	1.59	7.500	.125	4.000	.220	.72	93.0
7	X	1.86	13.54	5.36	2.72	2.10	5.19	1.59	7.000	.160	3.000	.260	1.16	63.8
5	X	1.88	11.92	5.33	2.46	1.93	4.32	1.61	6.000	.160	3.500	.190	1.00	78.4
7	X	1.98	13.01	5.90	2.86	2.11	4.84	1.69	8.000	.160	3.500	.190	1.08	77.4
7	X	2.07	14.10	6.49	3.23	2.29	4.96	1.77	7.000	.160	3.500	.190	1.16	76.4
5	X	2.13	12.31	8.75	2.57	2.15	4.20	1.82	6.000	.160	4.000	.220	1.00	91.6
7	X	2.22	13.43	7.12	2.77	2.34	4.71	1.90	8.000	.160	4.000	.220	1.08	91.4
7	X	2.32	14.58	8.85	2.97	2.53	4.72	1.98	7.000	.160	4.000	.220	1.16	89.3
5	X	2.58	12.77	8.70	2.89	2.48	3.77	2.18	8.000	.160	5.000	.250	1.16	89.3
7	X	2.65	13.94	9.23	2.90	2.69	4.00	2.26	6.500	.160	5.000	.250	1.08	117.3
7	X	2.75	15.12	10.67	3.11	2.90	4.35	2.34	7.500	.190	5.000	.250	1.16	115.8
5	X	3.10	16.47	11.25	3.27	3.14	4.61	2.84	7.500	.190	5.000	.250	1.47	114.5
5	X	3.21	17.70	12.17	3.48	3.36	4.89	2.74	8.000	.190	5.000	.250	1.57	113.3
6	X	3.28	13.18	13.46	2.78	3.32	3.33	2.80	6.000	.160	5.000	.313	1.00	148.0
7	X	3.38	12.88	45.48	3.00	3.18	3.59	2.88	6.500	.160	5.000	.313	1.08	145.8
7	X	3.47	13.78	53.11	3.21	3.40	3.88	2.96	7.000	.160	5.000	.313	1.16	143.5
5	X	3.52	17.11	62.31	3.38	3.64	4.11	3.26	7.500	.190	5.000	.313	1.47	141.8
8	X	3.94	18.46	15.36	3.59	3.88	4.37	3.35	8.000	.190	5.000	.313	1.57	140.2
9	X	4.34	20.01	17.09	3.75	4.13	4.62	3.70	8.500	.220	5.000	.313	1.93	138.7
9	X	4.47	21.37	19.15	3.95	4.37	4.88	3.81	9.000	.220	5.000	.313	2.04	137.4
10	X	4.66	20.43	104.97	4.15	4.61	5.14	3.92	9.500	.220	5.000	.313	2.15	136.2
9	X	4.70	22.75	20.31	3.77	4.38	4.37	4.06	8.500	.220	5.000	.375	1.93	138.7
9	X	4.39	21.89	100.37	3.97	4.33	4.82	4.17	9.000	.220	5.000	.375	2.04	137.4
10	X	5.02	23.15	112.73	4.10	4.66	4.87	4.28	9.500	.220	5.000	.375	2.15	136.2
10	X	5.42	20.71	97.84	3.79	4.72	4.03	4.62	8.500	.220	7.500	.375	1.93	160.4
10	X	5.50	24.98	128.13	4.32	5.13	5.12	4.58	10.000	.250	9.000	.375	2.56	135.0
9	X	5.55	22.15	110.53	4.00	4.99	4.26	4.73	9.000	.220	7.500	.375	2.04	178.5
11	X	5.84	20.49	142.47	4.51	5.38	5.37	4.81	10.500	.250	5.000	.375	2.69	134.0
11	X	5.08	23.61	124.08	4.20	5.28	4.49	4.84	9.500	.250	7.500	.375	2.15	176.8
11	X	5.79	28.01	157.70	4.71	5.83	5.62	4.93	11.000	.250	9.000	.375	2.81	132.0

3ST EFFECTIVE WIDTH

.250 IN. PLATE (AREA= 2.13 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	D	BEAM DIMENSIONS TW	WF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	25.30	27.79	135.76	4.33	5.37	4.88	5.05	10.000	.250	5.000	.438	2.56	135.0
11 X 6.07	26.84	29.45	150.95	4.53	5.02	5.13	5.17	10.500	.250	5.000	.438	2.64	134.3
12 X 6.16	28.58	29.66	140.78	4.35	5.50	4.75	5.25	10.000	.250	7.500	.375	2.56	175.2
11 X 6.21	28.39	31.13	167.05	4.72	5.88	5.37	5.30	11.000	.250	5.000	.438	2.81	132.9
11 X 6.30	27.13	31.39	150.46	4.55	5.77	4.98	5.37	10.500	.250	7.500	.375	2.69	173.8
11 X 6.45	28.71	33.15	173.07	4.75	6.03	5.22	5.50	11.000	.250	7.500	.375	2.61	172.4
12 X 7.38	33.01	35.75	210.26	4.98	6.37	5.68	6.29	12.000	.313	6.000	.438	3.83	131.0
13 X 7.56	34.76	37.60	230.31	5.17	6.33	6.12	6.45	12.500	.313	5.000	.438	3.99	130.1
12 X 7.62	33.41	37.92	217.60	5.01	6.51	5.74	6.49	12.000	.313	7.500	.375	3.63	169.9
13 X 7.61	35.18	39.86	236.25	5.19	6.77	5.98	6.65	12.500	.313	7.500	.375	3.99	168.8
13 X 7.90	35.21	40.66	241.12	5.18	6.35	5.90	6.30	12.500	.313	9.000	.500	3.99	130.1
13 X 7.39	36.98	41.81	260.60	5.58	7.05	6.22	6.31	13.000	.313	7.500	.375	4.15	167.7
13 X 8.10	37.32	42.57	263.20	5.37	7.11	6.14	6.95	13.000	.313	5.000	.500	4.15	129.2
14 X 8.17	38.60	43.79	282.87	5.56	7.29	6.46	6.96	13.500	.313	7.500	.375	4.30	166.2
14 X 8.35	38.85	44.91	280.42	5.55	7.37	6.38	7.11	13.500	.313	5.000	.500	4.30	128.4
12 X 8.41	34.15	44.07	235.71	5.02	6.90	5.55	7.16	12.000	.313	8.000	.438	3.83	183.2
13 X 8.59	35.98	46.26	250.03	5.21	7.17	5.58	7.32	12.500	.313	8.000	.438	3.99	182.0
13 X 8.78	37.83	48.47	261.54	5.40	7.44	5.81	7.48	13.000	.313	8.000	.438	4.15	180.8
14 X 8.36	39.72	50.71	306.24	5.58	7.71	6.04	7.63	13.500	.313	8.000	.438	4.30	179.7
12 X 8.97	34.52	48.23	240.47	5.01	7.14	5.11	7.54	12.000	.313	8.000	.500	3.83	183.2
13 X 9.15	36.38	50.60	269.85	5.20	7.42	5.33	7.80	12.500	.313	8.000	.500	3.99	182.0
13 X 9.34	38.27	52.99	294.46	5.39	7.09	5.56	7.95	13.000	.313	8.000	.500	4.15	160.8
14 X 9.52	40.19	55.41	325.31	5.58	7.97	5.78	8.11	13.500	.313	8.000	.500	4.30	179.7

3ST EFFECTIVE WIDTH

.313 IN. PLATE (AREA= 3.42 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	TM	WF	TF
2 X .50	2.38	.47	.71	.43	.30	1.51	.43	1.500	.125	2.000	.125
2 X .50	3.62	.86	1.29	.57	.36	1.96	.49	2.000	.125	2.000	.125
3 X .05	4.95	.87	2.08	.72	.42	2.39	.55	2.500	.125	2.000	.125
3 X .72	6.33	1.10	3.10	.88	.49	2.82	.62	3.000	.125	2.000	.125
3 X .84	6.71	1.12	3.41	.93	.53	2.96	.62	3.500	.125	2.500	.125
4 X .87	8.14	1.28	3.97	.93	.53	2.78	.68	3.000	.125	2.500	.125
4 X .34	9.59	1.50	5.00	1.10	.61	3.20	.74	3.500	.125	2.500	.125
5 X 1.02	11.35	1.86	6.72	1.26	.70	3.61	.80	4.000	.125	2.500	.125
5 X 1.09	12.51	2.17	8.74	1.43	.79	4.02	.87	4.500	.125	2.500	.125
5 X 1.13	13.40	2.51	11.10	1.60	.89	4.43	.93	5.000	.125	2.500	.125
5 X 1.16	13.97	2.48	8.04	1.40	.83	3.48	.97	4.000	.125	3.000	.160
5 X 1.21	11.92	2.86	13.79	1.77	.89	4.83	.99	5.500	.125	2.500	.125
5 X 1.24	13.44	2.87	11.15	1.58	.94	3.68	1.03	4.500	.125	3.000	.160
5 X 1.35	14.95	3.28	14.02	1.70	1.04	4.27	1.09	5.000	.125	3.000	.160
5 X 1.50	14.45	3.71	17.28	1.94	1.16	4.60	1.15	5.500	.125	3.000	.160
5 X 1.07	13.06	4.52	16.17	1.83	1.24	3.27	1.42	4.500	.125	4.000	.220
5 X 1.67	16.45	4.49	22.28	2.14	1.35	4.96	1.43	6.000	.160	3.000	.100
7 X 1.77	14.67	5.12	20.16	2.03	1.37	3.94	1.48	6.500	.125	4.000	.220
7 X 1.82	16.29	5.73	24.84	2.23	1.51	5.33	1.51	6.500	.160	3.000	.160
7 X 1.86	19.50	5.55	31.59	2.51	1.62	5.69	1.59	7.000	.125	4.000	.220
7 X 1.96	17.23	6.20	26.32	2.29	1.53	4.78	1.51	6.000	.160	3.500	.190
7 X 2.07	20.38	6.72	31.39	2.48	1.67	5.14	1.69	6.500	.160	3.500	.190
7 X 2.13	17.36	6.57	30.05	2.42	1.81	5.50	1.77	7.000	.160	3.500	.190
7 X 2.22	19.50	7.36	30.41	2.62	1.87	4.95	1.82	6.000	.160	4.000	.220
7 X 2.32	21.13	8.06	42.73	2.81	2.02	5.29	1.98	7.000	.160	4.000	.220
7 X 2.45	18.04	8.57	37.37	2.58	2.00	4.51	2.18	6.000	.160	5.000	.250
7 X 2.75	22.03	9.54	44.23	2.79	2.18	4.64	2.26	6.500	.160	5.000	.250
8 X 3.10	23.79	10.42	51.73	3.00	2.35	4.90	2.34	7.000	.160	5.000	.250
8 X 3.21	25.51	11.70	61.26	3.18	2.38	5.24	2.54	7.500	.190	5.000	.250
8 X 3.28	19.35	12.67	70.37	3.38	2.76	5.25	2.74	8.000	.190	5.000	.250
7 X 3.36	21.11	13.11	40.07	2.74	2.41	3.50	2.80	6.000	.160	5.000	.250
7 X 3.47	22.09	14.28	55.11	2.96	2.61	4.20	2.88	6.500	.160	5.000	.250
8 X 3.82	24.79	15.78	65.29	3.18	2.81	4.20	2.96	7.000	.160	5.000	.250
8 X 3.34	26.00	17.13	75.34	3.36	3.04	4.77	3.26	7.500	.190	6.000	.313
9 X 4.34	30.61	18.71	80.51	3.57	3.24	5.07	3.35	8.000	.190	6.000	.313
9 X 4.47	30.48	20.04	99.08	3.74	3.48	5.33	3.70	8.500	.220	5.000	.313
10 X 4.00	32.35	21.40	112.59	3.95	3.69	5.62	3.81	9.000	.220	5.000	.313
9 X 4.70	29.34	21.25	120.39	4.15	3.91	5.91	3.92	9.500	.220	5.000	.313
7 X 4.09	30.35	22.74	128.00	3.80	3.72	5.09	4.00	8.500	.220	5.000	.375
7 X 5.32	32.87	22.74	122.00	4.61	3.94	5.37	4.17	9.000	.220	5.000	.375
9 X 5.52	29.00	24.25	136.94	4.22	4.17	5.65	4.20	9.500	.220	6.000	.375
10 X 5.50	35.14	25.74	120.71	3.68	4.07	4.75	4.02	7.500	.220	7.500	.375
9 X 5.55	31.04	26.31	155.14	4.38	4.41	5.90	4.58	10.000	.250	5.000	.375
11 X 5.55	37.13	27.17	130.13	4.09	4.30	5.01	4.73	7.500	.250	7.500	.375
12 X 5.68	33.61	27.92	172.30	4.28	4.54	6.17	4.81	10.500	.250	5.000	.375
11 X 5.79	39.14	28.93	156.56	4.30	4.54	5.27	4.84	9.500	.250	7.500	.375
		29.35	190.48	4.78	4.87	6.45	4.93	11.000	.250	6.000	.375

3ST EFFECTIVE WIDTH

.313 IN. PLATE (AREA= 3.42 SQ. IN.)

NO. J X LB/FT	----- BEAM DIMENSIONS -----										SHEAR AREA	MAX SPAN	
	ZPL	ZFL	INERTIA	R	YF	AREA	U	IN	WF	TF			
11 X 5.92	35.00	29.24	165.08	4.42	4.55	5.00	5.05	10.000	.250	5.000	.438	2.58	135.0
11 X 6.07	37.04	31.01	183.82	4.63	4.88	5.93	5.17	10.500	.250	5.000	.438	2.70	134.0
11 X 6.10	35.99	31.18	172.29	4.46	4.79	5.53	5.25	10.000	.250	7.500	.375	2.58	175.2
11 X 6.21	39.09	32.79	233.13	4.83	5.12	6.19	5.30	11.000	.250	5.000	.438	2.85	132.9
11 X 6.30	38.05	33.03	191.10	4.60	5.12	5.79	5.37	10.000	.250	7.500	.375	2.70	173.6
11 X 6.45	40.12	34.39	211.12	4.87	5.26	6.05	5.50	11.000	.250	7.500	.375	2.83	172.4
12 X 7.38	42.03	37.08	253.29	5.11	5.53	6.09	6.29	12.000	.313	6.000	.438	3.85	131.0
13 X 7.30	47.25	39.06	277.01	5.30	5.80	6.54	6.45	12.000	.313	6.000	.438	4.01	133.1
12 X 7.62	45.55	40.14	262.74	5.15	5.77	6.54	6.49	12.000	.313	7.500	.375	3.85	169.9
13 X 7.80	47.80	42.21	287.19	5.34	6.01	6.80	6.65	12.500	.313	7.500	.375	4.01	160.8
13 X 7.90	47.85	43.31	291.28	5.34	6.19	6.73	6.80	12.500	.313	5.000	.500	4.01	130.1
13 X 7.39	50.07	44.30	312.90	5.53	6.25	7.06	6.81	13.000	.313	7.500	.375	4.17	167.7
13 X 8.10	50.14	45.46	317.41	5.53	6.33	6.98	6.95	13.000	.313	5.000	.500	4.17	129.2
14 X 8.17	52.37	48.42	339.88	5.72	6.49	7.24	7.30	13.500	.313	7.500	.375	4.32	166.7
14 X 8.35	52.45	47.64	344.83	5.72	6.57	7.24	7.11	13.500	.313	6.000	.500	4.32	128.4
12 X 8.41	46.35	46.05	280.89	5.21	6.16	6.15	7.16	12.000	.313	8.000	.438	3.85	183.2
13 X 8.29	48.87	48.39	313.44	5.40	6.40	6.40	7.32	12.500	.313	8.000	.438	4.01	182.0
13 X 8.76	51.21	51.35	341.33	5.80	6.60	6.65	7.48	13.000	.313	8.000	.438	4.17	180.8
14 X 6.96	53.58	53.73	370.57	5.79	6.92	6.90	7.63	13.500	.313	8.000	.438	4.32	179.7
12 X 8.97	47.00	51.08	361.58	5.22	6.41	5.90	7.64	12.000	.313	8.000	.500	3.85	183.2
13 X 9.15	49.42	53.61	329.46	5.42	6.07	6.15	7.80	12.500	.313	8.000	.500	4.01	182.0
13 X 9.34	51.80	56.16	358.73	5.62	6.92	6.39	7.95	13.000	.313	8.000	.500	4.17	160.8
14 X 9.32	54.22	58.74	389.42	5.81	7.18	6.63	8.11	13.500	.313	8.000	.500	4.32	179.7

351 EFFECTIVE WIDTH

.375 IN. PLATE (AREA= 4.92 SQ. IN.)

NOM.		BEAM DIMENSIONS										SHEAR		MAX. SPAN
D X LB/FT		ZPL	ZFL	INERTIA	R	YP	YF	AREA	U	IM	WF	TF	AREA	
2 X .50	2.61	.68	.76	.38	.29	.33	1.58	.43	1.500	.125	2.000	.125	.23	53.2
2 X .56	4.12	.69	1.36	.64	.33	.38	2.04	.49	2.000	.125	2.000	.125	.30	49.3
3 X .65	5.80	1.12	3.30	.77	.43	.47	2.94	.62	3.000	.125	2.000	.125	.36	47.3
3 X .72	7.60	1.05	2.56	.68	.43	.47	2.94	.62	3.000	.125	2.000	.125	.42	45.8
3 X .80	8.17	1.31	3.91	.83	.41	.47	2.47	.66	3.000	.125	2.500	.125	.30	61.7
4 X .87	10.11	1.59	5.34	.97	.53	.59	3.35	.74	3.500	.125	2.500	.125	.42	59.5
4 X .94	12.39	1.90	7.17	1.12	.59	.66	3.78	.80	4.000	.125	2.500	.125	.40	57.9
5 X 1.02	14.13	2.22	9.34	1.27	.66	.74	4.21	.87	4.500	.125	2.500	.125	.55	56.6
5 X 1.09	16.13	2.56	11.86	1.42	.74	.81	4.64	.93	5.000	.125	2.500	.125	.61	55.6
4 X 1.13	13.46	2.53	9.31	1.26	.69	.74	3.68	.97	4.000	.125	3.000	.160	.67	54.6
5 X 1.16	18.17	2.91	14.75	1.58	.81	.87	5.06	.99	5.500	.125	2.500	.125	.73	53.7
5 X 1.21	15.50	2.93	12.01	1.42	.77	.81	4.10	1.03	4.500	.125	3.000	.160	.61	68.7
5 X 1.26	17.01	3.55	12.11	1.59	.80	.87	4.52	1.09	5.000	.125	3.000	.160	.67	67.5
5 X 1.35	19.73	3.78	16.84	1.75	.95	.95	4.93	1.19	5.500	.125	3.000	.160	.73	66.5
4 X 1.40	15.18	4.02	13.90	1.49	.92	.92	3.40	1.36	4.000	.125	4.000	.220	.55	90.7
5 X 1.57	17.42	4.51	17.77	1.67	1.02	1.02	3.86	1.42	4.500	.125	4.000	.220	.61	96.4
5 X 1.67	21.04	4.60	24.21	1.99	1.11	1.11	5.27	1.43	5.000	.160	3.000	.150	1.02	65.5
5 X 1.74	19.67	5.21	22.15	1.86	1.13	1.13	4.25	1.48	5.500	.125	4.000	.220	.67	94.5
7 X 1.77	23.95	5.13	29.95	2.13	1.21	1.21	5.60	1.51	6.500	.160	3.000	.160	1.10	64.6
7 X 1.82	21.91	5.04	27.08	2.05	1.24	1.24	4.04	1.55	5.500	.125	4.000	.220	.73	93.0
7 X 1.86	26.07	5.08	34.42	2.30	1.32	1.32	6.05	1.59	7.000	.160	3.000	.160	1.18	63.8
5 X 1.88	23.95	5.63	28.83	2.19	1.25	1.25	5.12	1.61	6.000	.160	3.500	.190	1.02	78.4
7 X 1.98	25.23	6.24	34.41	2.28	1.36	1.36	5.51	1.69	6.500	.160	3.500	.190	1.10	77.4
7 X 2.07	27.41	6.38	40.57	2.46	1.46	1.46	5.69	1.77	7.000	.160	3.500	.190	1.18	76.4
5 X 2.13	24.38	6.81	33.86	2.24	1.41	1.41	4.97	1.82	6.000	.160	4.000	.220	1.02	91.6
7 X 2.22	28.32	7.53	40.25	2.43	1.53	1.53	5.35	1.90	6.500	.160	4.000	.220	1.10	90.4
7 X 2.34	28.56	8.27	47.29	2.62	1.66	1.66	5.72	1.98	7.000	.160	4.000	.220	1.18	89.3
5 X 2.56	25.32	8.87	41.87	2.43	1.65	1.65	4.72	2.18	6.000	.160	5.000	.250	1.02	119.0
7 X 2.59	27.04	9.75	49.37	2.63	1.79	1.79	5.08	2.20	6.500	.160	5.000	.250	1.10	117.3
7 X 2.75	29.97	10.66	56.00	2.83	1.94	1.94	5.44	2.34	7.000	.190	5.000	.250	1.18	115.8
5 X 3.10	32.27	12.00	68.90	3.02	2.14	2.14	5.74	2.64	7.500	.190	5.000	.250	1.50	115.5
8 X 3.21	34.00	13.31	79.19	3.22	2.29	2.29	6.09	2.74	8.000	.190	5.000	.250	1.59	113.3
5 X 3.28	28.92	13.42	53.39	2.84	2.01	2.01	4.36	2.80	6.000	.160	5.000	.313	1.02	148.0
7 X 3.38	31.39	14.02	63.62	2.84	2.18	2.18	4.70	2.88	6.500	.160	5.000	.313	1.10	145.6
7 X 3.47	33.80	14.21	73.52	3.05	2.35	2.35	5.03	2.96	7.000	.160	5.000	.313	1.18	143.5
5 X 3.62	36.25	16.21	80.26	3.25	2.52	2.52	5.32	3.20	7.500	.190	5.000	.313	1.50	141.8
5 X 3.94	33.78	17.49	98.82	3.46	2.73	2.73	5.65	3.35	8.000	.190	6.000	.313	1.59	140.2
9 X 4.47	41.26	20.66	114.27	3.64	2.95	2.95	5.93	3.70	8.500	.220	5.000	.313	1.95	138.7
9 X 4.60	43.75	22.38	129.07	3.84	3.13	3.13	6.25	3.81	9.000	.220	5.000	.313	2.06	137.4
10 X 4.76	49.43	22.38	144.89	4.05	3.31	3.31	6.56	3.92	9.500	.220	5.000	.313	2.17	136.2
9 X 4.76	41.26	23.46	144.89	3.73	3.17	3.17	5.70	4.06	8.500	.220	5.000	.375	1.55	138.7
9 X 5.02	44.50	25.03	150.20	4.15	3.50	3.50	6.01	4.17	9.000	.220	5.000	.375	2.06	137.4
10 X 5.42	40.36	26.23	141.10	3.85	3.55	3.55	6.32	4.28	9.500	.220	5.000	.375	2.17	136.2
10 X 5.50	47.25	27.23	174.24	4.32	3.74	3.74	6.58	4.62	10.000	.250	7.500	.375	1.95	180.4
9 X 5.55	42.96	26.63	159.03	4.06	3.70	3.70	5.67	4.73	9.000	.220	7.500	.375	2.59	135.0
11 X 5.68	49.86	26.91	195.02	4.52	3.99	3.99	6.88	4.81	10.500	.250	5.000	.375	2.06	178.5
10 X 5.68	45.57	29.86	178.13	4.27	3.91	3.91	5.97	4.84	9.500	.220	7.500	.375	2.72	134.0
11 X 5.79	52.47	30.02	219.97	4.72	4.19	4.19	7.18	4.93	11.000	.250	5.000	.375	2.17	176.8
													2.84	132.9

3ST EFFECTIVE WIDTH

.375 IN. PLATE (AREA= 4.92 SQ. IN.)

NUM. O X LB/FT	ZPL	ZFL	INERTIA	K	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
						AREA	U	IM		
10 X 5.92	47.92	30.29	192.54	4.40	6.36	5.05	10.000	.250	5.030	135.0
11 X 6.17	50.97	32.13	213.67	4.06	6.05	5.17	10.500	.250	5.030	134.0
11 X 6.16	48.46	32.27	200.97	4.45	6.23	5.25	10.000	.250	7.530	175.2
11 X 6.21	53.23	34.30	235.99	4.81	6.94	5.34	11.000	.250	5.030	132.9
11 X 6.30	51.13	34.20	222.86	4.05	6.52	5.37	10.500	.250	7.530	173.8
11 X 6.45	53.82	36.15	246.00	4.86	6.80	5.50	11.000	.250	7.530	172.4
12 X 7.38	59.48	39.49	293.07	5.12	7.44	6.29	12.000	.313	6.030	131.0
13 X 7.50	62.20	41.27	321.00	5.31	7.72	6.45	12.500	.313	6.030	130.1
12 X 7.62	60.17	41.82	305.33	5.17	7.30	6.49	12.000	.313	7.530	169.9
13 X 7.80	63.00	44.00	333.54	5.37	7.58	6.65	12.500	.313	7.530	168.8
13 X 7.86	63.09	45.16	336.96	5.36	7.53	6.80	12.500	.313	6.030	130.1
13 X 7.89	65.80	46.20	363.18	5.56	7.86	6.81	13.000	.313	7.530	167.7
13 X 8.16	65.97	47.45	369.12	5.57	7.78	6.95	13.000	.313	6.030	129.2
14 X 8.17	68.74	48.44	394.25	5.70	8.14	6.90	13.500	.313	7.530	166.7
14 X 8.35	68.37	49.74	400.73	5.77	8.00	7.11	13.500	.313	5.030	126.4
12 X 8.41	61.51	48.01	336.00	5.27	6.91	7.16	12.000	.313	8.030	103.2
13 X 8.59	67.43	51.00	360.76	5.47	7.18	7.32	12.500	.313	8.030	182.0
13 X 8.70	67.37	53.55	399.04	5.67	7.45	7.48	13.000	.313	8.030	180.9
14 X 8.90	70.34	56.00	432.86	5.87	7.72	7.53	13.500	.313	8.030	179.7
12 X 8.97	62.20	53.25	355.01	5.32	6.67	7.64	12.000	.313	8.030	183.2
13 X 9.15	65.17	55.90	367.41	5.52	6.93	7.80	12.500	.313	8.030	182.0
13 X 9.34	68.16	58.58	421.40	5.72	7.19	7.95	13.000	.313	8.030	180.8
14 X 9.52	71.16	61.30	456.98	5.92	7.46	8.11	13.500	.313	8.030	179.7

0.438 IN. PLATE (AREA = 6.7) 3Q. IN.)

19.

3ST EFFECTIVE WIDTH

.438 IN. PLATE (AREA= 6.73 SQ. IN.)

NOM. D X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			TF	SHEAR AREA	MAX. SPAN
							AREA	U	TH			
10 X 5.92	62.05	31.06	216.02	4.29	3.44	6.96	5.05	10.000	.250	.438	2.61	135.0
11 X 6.07	65.43	32.96	235.72	4.49	3.60	7.27	5.17	10.500	.250	.438	2.73	135.0
10 X 5.15	62.77	33.58	226.39	4.35	3.50	6.64	5.25	10.000	.250	.375	2.61	175.2
11 X 6.21	66.82	34.69	264.79	4.70	3.65	7.39	5.30	11.000	.250	.438	2.86	132.9
11 X 6.30	66.18	35.07	250.71	4.56	3.79	7.15	5.37	10.500	.250	.375	2.73	172.4
11 X 6.45	69.00	37.09	270.73	4.70	3.98	7.46	5.50	11.000	.250	.375	2.86	172.4
12 X 7.38	76.18	40.71	324.39	5.04	4.33	8.11	6.29	12.000	.313	.438	3.89	131.0
12 X 7.56	79.08	42.88	360.69	5.24	4.53	8.41	6.45	12.500	.313	.438	4.05	130.1
12 X 7.62	77.03	43.10	343.02	5.11	4.40	7.98	6.44	12.000	.313	.375	3.89	169.9
13 X 7.80	80.61	45.36	375.50	5.33	4.66	8.28	6.55	12.500	.313	.375	4.05	169.9
13 X 7.90	80.75	46.01	382.33	5.32	4.73	8.20	6.60	12.500	.313	.500	4.05	130.1
13 X 7.99	81.17	47.56	408.89	5.53	4.86	8.50	6.81	13.000	.313	.375	4.21	167.7
13 X 8.16	84.33	48.37	416.28	5.62	4.94	8.50	6.95	13.000	.313	.500	4.21	129.2
14 X 8.17	87.74	49.39	443.84	5.73	5.06	8.85	6.96	13.500	.313	.375	4.36	166.7
14 X 8.35	87.93	51.36	451.88	5.72	5.14	8.80	7.11	13.500	.313	.500	4.36	125.4
12 X 8.41	78.06	50.10	381.02	5.64	4.83	7.61	7.16	12.000	.313	.438	3.89	183.2
13 X 8.59	82.50	52.05	415.79	5.45	5.04	7.90	7.32	12.500	.313	.438	4.05	182.0
13 X 8.78	88.16	55.23	452.26	5.65	5.25	8.19	7.48	13.000	.313	.438	4.21	180.8
14 X 8.90	89.63	57.85	490.45	5.85	5.46	8.48	7.53	13.500	.313	.438	4.36	175.7
12 X 8.97	79.78	54.89	404.40	5.31	5.07	7.37	7.64	12.000	.313	.500	3.89	183.2
13 X 9.15	83.48	57.05	441.23	5.52	5.28	7.65	7.80	12.500	.313	.500	4.05	182.0
13 X 9.34	87.20	58.44	479.70	5.72	5.50	7.94	7.95	13.000	.313	.500	4.21	180.8
14 X 9.52	90.94	53.26	520.00	5.93	5.72	8.22	8.11	13.500	.313	.500	4.36	175.7

3ST EFFECTIVE WIDTH

.500 IN. PLATE (AREA= 8.75 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
							AREA	U	IN	WF	TF	
2 X .50	2.72	.51	.85	.30	.31	1.69	.43	1.500	.125	2.000	.125	.25
2 X .50	4.46	.70	1.52	.41	.34	2.10	.49	2.000	.125	2.000	.125	.31
3 X .55	6.60	.92	2.43	.51	.37	2.63	.52	2.500	.125	2.000	.125	.38
3 X .72	9.00	1.16	3.60	.62	.40	3.10	.62	3.000	.125	2.000	.125	.44
3 X .72	7.37	1.09	2.64	.55	.39	2.61	.62	2.500	.125	2.500	.125	.36
3 X .84	9.75	1.30	4.17	.67	.42	3.68	.70	3.000	.125	2.500	.125	.44
4 X .87	12.73	1.64	5.82	.78	.46	4.54	.80	3.500	.125	2.500	.125	.50
4 X .94	15.09	1.95	7.82	.90	.50	5.30	.80	4.000	.125	2.500	.125	.56
5 X 1.02	18.06	2.28	10.17	1.03	.54	6.40	.87	4.500	.125	2.500	.125	.63
5 X 1.09	22.01	2.63	12.92	1.16	.59	7.91	.93	5.000	.125	2.500	.125	.69
4 X 1.13	18.18	2.60	10.24	1.03	.56	3.94	.97	4.000	.125	3.000	.160	.56
5 X 1.15	25.31	3.00	16.08	1.28	.64	5.30	.99	5.500	.125	2.500	.125	.75
5 X 1.21	21.51	3.01	13.20	1.10	.61	4.39	1.03	5.000	.125	3.000	.160	.63
5 X 1.28	24.93	3.44	16.02	1.30	.67	5.28	1.09	5.500	.125	3.000	.160	.69
5 X 1.35	28.70	3.83	20.50	1.44	.72	6.40	1.15	6.000	.125	3.000	.160	.75
4 X 1.50	22.04	4.13	15.06	1.24	.71	3.79	1.36	4.500	.125	4.000	.220	.56
5 X 1.57	32.26	4.74	26.87	1.62	.83	5.07	1.42	6.000	.160	3.000	.160	.63
5 X 1.74	29.43	5.35	24.91	1.50	.85	6.05	1.48	5.000	.125	4.000	.220	.69
7 X 1.77	35.01	5.29	32.27	1.77	.90	6.10	1.51	6.500	.125	3.000	.160	.89
5 X 1.82	39.38	5.99	36.45	1.72	.92	5.68	1.55	5.500	.125	3.000	.220	.75
7 X 1.86	34.75	5.60	32.29	1.77	.93	5.57	1.59	7.000	.160	3.500	.190	.89
7 X 1.93	38.41	6.43	38.58	1.92	1.00	6.00	1.69	6.500	.160	3.500	.190	1.04
7 X 2.07	42.90	7.10	45.54	2.08	1.08	6.42	1.77	6.000	.160	3.500	.190	1.12
5 X 2.13	36.90	7.52	38.33	1.90	1.04	5.45	1.82	6.000	.160	4.000	.250	.89
7 X 2.22	40.73	7.76	45.00	2.07	1.12	5.30	1.90	6.500	.160	4.000	.250	1.04
7 X 2.32	44.50	8.52	53.02	2.24	1.20	6.30	1.98	7.000	.160	4.000	.250	1.12
8 X 2.50	39.74	9.13	48.26	2.10	1.21	5.29	2.18	6.000	.160	5.000	.250	1.04
7 X 2.55	43.04	10.64	57.16	2.28	1.31	5.09	2.26	6.500	.160	5.000	.250	1.12
7 X 2.75	47.55	10.98	66.91	2.46	1.41	6.09	2.34	7.000	.160	5.000	.250	1.20
5 X 3.10	21.46	12.41	79.30	2.69	1.50	6.44	2.54	7.500	.190	5.000	.250	1.12
8 X 3.21	55.26	13.46	91.98	2.83	1.60	6.84	2.74	8.000	.190	5.000	.250	1.52
5 X 3.28	42.50	12.02	63.27	2.34	1.49	5.01	2.80	6.000	.160	5.000	.313	1.62
7 X 3.35	48.05	13.83	74.07	2.53	1.60	5.40	2.88	6.500	.160	5.000	.313	1.04
7 X 3.47	50.72	15.06	87.11	2.73	1.72	5.70	2.96	7.000	.160	5.000	.313	1.12
8 X 3.32	54.07	16.70	102.00	2.92	1.88	6.12	3.20	7.500	.190	6.000	.313	1.52
8 X 3.34	56.73	18.09	117.58	3.12	2.00	6.20	3.35	8.000	.190	6.000	.313	1.62
9 X 3.33	62.09	20.01	136.53	3.31	2.18	6.52	3.70	8.500	.220	5.000	.313	1.98
9 X 4.37	67.75	21.47	154.32	3.51	2.31	7.19	3.81	9.000	.220	5.000	.313	2.09
11 X 4.00	70.00	22.95	173.35	3.70	2.45	7.35	3.92	9.500	.220	5.000	.313	2.20
9 X 4.76	84.06	22.76	151.14	3.44	2.36	6.04	4.06	9.500	.220	5.000	.375	1.98
9 X 4.69	88.19	24.38	170.03	3.63	2.50	7.00	4.17	9.500	.220	5.000	.375	2.09
11 X 5.22	72.33	26.64	191.44	3.83	2.65	7.35	4.28	9.500	.220	5.000	.375	2.20
9 X 5.42	65.97	27.25	173.58	3.60	2.63	6.37	4.52	7.500	.250	5.000	.375	1.98
9 X 5.50	70.43	28.44	217.02	4.02	2.85	7.65	4.68	8.000	.250	5.000	.375	2.09
9 X 5.55	70.20	29.14	195.03	3.81	2.79	6.71	4.73	9.000	.250	7.500	.375	1.75
11 X 5.04	80.38	30.22	241.75	4.22	3.00	8.00	4.81	10.500	.250	5.000	.375	2.75
11 X 5.06	84.44	31.85	219.13	4.02	2.94	7.06	4.84	9.500	.250	7.500	.375	2.20
11 X 5.75	84.74	32.53	267.32	4.42	3.15	8.35	4.93	11.000	.250	5.000	.375	2.88

3ST EFFECTIVE WIDTH

.500 IN. PLATE (AREA= 8.75 SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	R	Y ²	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TM		
10 X 5.32	77.72	31.54	236.12	4.14	3.04	7.46	5.05	10.000	.250	5.000	.438
11 X 6.37	81.95	33.59	262.17	4.34	3.20	7.80	5.17	10.500	.250	5.000	.438
12 X 7.42	86.18	35.63	288.70	4.54	3.35	8.14	5.25	11.000	.250	5.000	.438
13 X 8.47	90.41	37.68	315.23	4.74	3.50	8.48	5.30	11.500	.250	5.000	.438
14 X 9.52	94.64	39.73	341.76	4.94	3.65	8.82	5.37	12.000	.250	5.000	.438
15 X 10.57	98.87	41.78	368.29	5.14	3.80	9.16	5.40	12.500	.250	5.000	.438
16 X 11.62	103.10	43.83	394.82	5.34	3.95	9.50	5.45	13.000	.250	5.000	.438
17 X 12.67	107.33	45.88	421.35	5.54	4.10	9.84	5.49	13.500	.250	5.000	.438
18 X 13.72	111.56	47.93	447.88	5.74	4.25	10.18	5.54	14.000	.250	5.000	.438
19 X 14.77	115.79	50.00	474.41	5.94	4.40	10.52	5.58	14.500	.250	5.000	.438
20 X 15.82	120.02	52.05	500.94	6.14	4.55	10.86	5.63	15.000	.250	5.000	.438
21 X 16.87	124.25	54.10	527.47	6.34	4.70	11.20	5.67	15.500	.250	5.000	.438
22 X 17.92	128.48	56.15	554.00	6.54	4.85	11.54	5.72	16.000	.250	5.000	.438
23 X 18.97	132.71	58.20	580.53	6.74	5.00	11.88	5.76	16.500	.250	5.000	.438
24 X 20.02	136.94	60.25	607.06	6.94	5.15	12.22	5.81	17.000	.250	5.000	.438
25 X 21.07	141.17	62.30	633.59	7.14	5.30	12.56	5.85	17.500	.250	5.000	.438
26 X 22.12	145.40	64.35	660.12	7.34	5.45	12.90	5.90	18.000	.250	5.000	.438
27 X 23.17	149.63	66.40	686.65	7.54	5.60	13.24	5.94	18.500	.250	5.000	.438
28 X 24.22	153.86	68.45	713.18	7.74	5.75	13.58	5.99	19.000	.250	5.000	.438
29 X 25.27	158.09	70.50	739.71	7.94	5.90	13.92	6.03	19.500	.250	5.000	.438
30 X 26.32	162.32	72.55	766.24	8.14	6.05	14.26	6.08	20.000	.250	5.000	.438
31 X 27.37	166.55	74.60	792.77	8.34	6.20	14.60	6.12	20.500	.250	5.000	.438
32 X 28.42	170.78	76.65	819.30	8.54	6.35	14.94	6.17	21.000	.250	5.000	.438
33 X 29.47	175.01	78.70	845.83	8.74	6.50	15.28	6.21	21.500	.250	5.000	.438
34 X 30.52	179.24	80.75	872.36	8.94	6.65	15.62	6.26	22.000	.250	5.000	.438
35 X 31.57	183.47	82.80	898.89	9.14	6.80	15.96	6.30	22.500	.250	5.000	.438
36 X 32.62	187.70	84.85	925.42	9.34	6.95	16.30	6.35	23.000	.250	5.000	.438
37 X 33.67	191.93	86.90	951.95	9.54	7.10	16.64	6.39	23.500	.250	5.000	.438
38 X 34.72	196.16	88.95	978.48	9.74	7.25	16.98	6.44	24.000	.250	5.000	.438
39 X 35.77	200.39	91.00	1005.01	9.94	7.40	17.32	6.48	24.500	.250	5.000	.438
40 X 36.82	204.62	93.05	1031.54	10.14	7.55	17.66	6.53	25.000	.250	5.000	.438
41 X 37.87	208.85	95.10	1058.07	10.34	7.70	18.00	6.57	25.500	.250	5.000	.438
42 X 38.92	213.08	97.15	1084.60	10.54	7.85	18.34	6.62	26.000	.250	5.000	.438
43 X 39.97	217.31	99.20	1111.13	10.74	8.00	18.68	6.66	26.500	.250	5.000	.438
44 X 41.02	221.54	101.25	1137.66	10.94	8.15	19.02	6.71	27.000	.250	5.000	.438
45 X 42.07	225.77	103.30	1164.19	11.14	8.30	19.36	6.75	27.500	.250	5.000	.438
46 X 43.12	230.00	105.35	1190.72	11.34	8.45	19.70	6.80	28.000	.250	5.000	.438
47 X 44.17	234.23	107.40	1217.25	11.54	8.60	20.04	6.84	28.500	.250	5.000	.438
48 X 45.22	238.46	109.45	1243.78	11.74	8.75	20.38	6.89	29.000	.250	5.000	.438
49 X 46.27	242.69	111.50	1270.31	11.94	8.90	20.72	6.93	29.500	.250	5.000	.438
50 X 47.32	246.92	113.55	1296.84	12.14	9.05	21.06	6.98	30.000	.250	5.000	.438

351 EFFECTIVE WIDTH

.625 IN. PLATE (AREA=13.67 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	K	Y _P	Y _F	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	IF		
2 X .50	2.04	.53	.94	.20	.36	1.77	.43	1.500	.125	.125	53.2
2 X .58	4.42	.73	1.05	.34	.37	2.25	.49	2.000	.125	.125	49.3
3 X .60	9.00	.95	2.01	.43	.39	2.73	.55	2.500	.125	.125	47.3
3 X .72	9.50	1.20	3.04	.52	.41	3.21	.62	3.000	.125	.125	45.8
3 X .80	10.44	1.39	4.40	.56	.43	3.20	.68	3.500	.125	.125	41.7
4 X .87	13.71	1.69	6.20	.66	.45	3.07	.74	3.500	.125	.125	59.5
4 X .94	17.30	2.00	8.30	.70	.48	4.15	.80	4.000	.125	.125	57.9
5 X 1.02	21.19	2.34	10.78	.86	.51	4.62	.87	4.500	.125	.125	56.6
5 X 1.09	25.34	2.69	13.07	.97	.54	5.09	.93	5.000	.125	.125	55.6
5 X 1.13	20.82	2.66	10.92	.86	.52	4.10	.97	4.000	.125	.125	54.6
5 X 1.16	25.70	3.06	17.00	1.08	.57	5.55	.93	5.500	.125	.125	70.1
5 X 1.21	25.15	3.08	14.05	.98	.56	4.57	1.03	4.500	.125	.125	53.7
5 X 1.28	25.70	3.51	17.06	1.09	.59	5.03	1.09	5.000	.125	.125	68.7
5 X 1.35	34.43	3.97	21.78	1.21	.63	5.49	1.15	5.500	.125	.125	67.5
4 X 1.50	20.92	4.23	10.90	1.00	.63	7.00	1.30	4.000	.125	.125	86.5
5 X 1.07	31.95	4.64	21.53	1.19	.67	4.45	1.42	4.500	.125	.125	93.7
5 X 1.67	40.52	4.85	26.07	1.38	.71	5.91	1.43	5.910	.160	.160	90.4
5 X 1.74	37.14	5.40	26.79	1.33	.72	4.90	1.48	5.000	.125	.125	65.5
7 X 1.77	45.41	5.41	34.44	1.51	.70	6.37	1.51	6.370	.150	.150	94.5
7 X 1.82	42.46	6.11	40.86	1.47	.77	5.35	1.55	5.500	.125	.125	64.6
5 X 1.86	40.58	6.30	40.86	1.64	.81	6.82	1.59	7.000	.150	.150	93.0
5 X 1.98	44.43	6.52	34.02	1.51	.70	5.82	1.51	6.000	.150	.150	73.4
7 X 1.93	49.73	6.57	41.36	1.84	.83	6.29	1.59	6.500	.150	.150	77.4
7 X 2.07	55.10	7.25	48.83	1.78	.89	6.74	1.77	7.000	.160	.160	70.4
5 X 2.13	48.20	7.17	41.33	1.03	.80	5.77	1.82	6.000	.150	.150	91.6
7 X 2.22	53.76	7.92	49.17	1.76	.91	6.21	1.90	6.500	.160	.160	90.0
7 X 2.32	59.32	8.69	57.62	1.92	.97	6.65	1.98	7.000	.160	.160	89.3
5 X 2.55	53.31	9.32	52.56	1.62	.99	5.94	2.18	6.000	.160	.160	119.0
7 X 2.65	59.08	10.25	62.23	1.98	1.05	6.37	2.20	6.500	.160	.160	117.3
7 X 2.75	64.88	11.20	72.65	2.13	1.12	6.50	2.34	7.000	.160	.160	115.8
5 X 3.10	70.78	12.08	87.40	2.31	1.23	6.89	2.54	7.500	.190	.190	114.5
8 X 3.21	76.51	13.75	100.58	2.48	1.31	7.31	2.74	8.000	.190	.190	113.3
5 X 3.28	58.86	12.68	70.03	2.00	1.19	5.44	2.80	6.000	.160	.160	148.0
7 X 3.39	64.94	14.11	82.01	2.23	1.27	5.85	2.88	6.500	.160	.160	145.6
7 X 3.47	71.03	15.37	90.34	2.41	1.30	6.27	2.90	6.500	.160	.160	143.5
8 X 3.52	77.02	17.12	113.82	2.59	1.48	6.65	3.20	7.500	.190	.190	141.8
6 X 3.54	63.10	16.79	136.45	2.77	1.57	7.06	3.35	8.000	.190	.190	140.2
9 X 4.34	94.06	20.49	152.11	2.96	1.71	7.42	3.70	8.500	.220	.220	138.7
9 X 4.47	95.13	21.39	171.89	3.14	1.81	7.82	3.81	9.000	.220	.220	137.4
10 X 4.50	101.20	23.51	193.19	3.31	1.91	8.22	3.92	9.500	.220	.220	136.2
9 X 4.76	91.06	23.31	169.57	3.09	1.82	7.28	4.06	8.500	.220	.220	133.7
9 X 4.89	97.84	24.97	191.50	3.28	1.96	7.67	4.17	9.000	.220	.220	137.4
10 X 5.02	104.03	26.07	214.94	3.46	2.07	8.06	4.28	9.500	.220	.220	136.2
9 X 5.22	92.23	27.91	196.95	3.28	2.07	7.06	4.62	8.500	.220	.220	130.4
10 X 5.35	110.02	29.20	245.17	3.65	2.23	8.40	4.98	10.000	.250	.250	135.0
11 X 5.55	101.50	29.04	262.01	3.47	2.19	7.44	4.73	9.000	.220	.220	178.5
11 X 5.64	110.19	31.04	272.50	3.84	2.35	8.78	4.81	10.500	.250	.250	134.0
11 X 5.68	107.68	31.81	248.73	3.67	2.31	7.82	4.84	9.500	.220	.220	176.8
11 X 5.79	122.36	32.91	301.50	4.03	2.40	9.16	4.93	11.000	.250	.250	132.9

3ST EFFECTIVE WIDTH

.625 IN. PLATE (AREA=13.67 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							U	TF	WF		
10 X 5.92	112.38	32.50	267.83	3.78	2.38	8.24	10.000	.250	5.000	2.66	135.0
11 X 6.37	110.05	34.51	297.40	3.97	2.51	8.02	10.500	.250	5.000	2.78	134.0
13 X 6.16	114.02	34.59	281.95	3.86	2.47	8.15	10.000	.250	7.500	2.66	172.2
11 X 6.21	124.92	36.55	328.72	4.10	2.63	8.99	11.000	.250	5.000	2.91	132.9
11 X 6.33	124.33	36.09	312.80	4.05	2.60	8.53	10.500	.250	7.500	2.78	171.8
11 X 6.45	126.05	38.03	345.46	4.25	2.73	8.90	11.000	.250	7.500	2.91	172.4
12 X 7.36	137.16	43.03	413.55	4.55	3.02	9.61	12.000	.313	8.000	3.95	131.0
13 X 7.20	143.43	45.57	452.39	4.74	3.15	9.97	12.500	.313	8.000	4.11	130.1
14 X 7.02	139.00	45.52	432.95	4.63	3.11	9.51	12.000	.313	7.500	3.95	169.9
13 X 7.80	145.33	47.96	473.26	4.83	3.26	9.87	12.500	.313	7.500	4.11	168.8
13 X 7.99	151.06	50.43	515.83	5.02	3.40	10.23	13.000	.313	8.000	4.26	167.7
13 X 8.10	152.14	51.86	526.94	5.05	3.46	10.16	13.000	.313	6.000	4.20	124.2
14 X 8.17	150.00	52.34	500.10	5.21	3.54	10.58	13.500	.313	7.500	4.42	166.7
14 X 8.35	158.52	54.44	572.35	5.25	3.61	10.21	13.500	.313	5.000	4.42	126.4
14 X 8.41	142.94	52.91	467.54	4.84	3.41	9.21	12.000	.313	8.000	3.95	163.2
13 X 8.59	149.42	55.05	532.22	5.04	3.56	9.56	12.500	.313	8.000	4.11	182.0
13 X 8.78	155.91	56.43	579.10	5.23	3.71	9.91	13.000	.313	8.000	4.26	180.6
14 X 8.96	162.41	51.25	628.23	5.43	3.87	10.26	13.500	.313	8.000	4.42	179.7
12 X 8.97	175.05	58.01	523.15	4.95	3.61	9.02	12.000	.313	8.000	3.95	183.2
13 X 9.15	151.03	50.97	570.73	5.16	3.70	9.46	12.500	.313	8.000	4.11	182.0
13 X 9.34	156.21	53.97	620.62	5.36	3.92	9.70	13.000	.313	8.000	4.26	180.6
14 X 9.52	164.60	57.00	672.86	5.56	4.06	10.04	13.500	.313	8.000	4.42	179.7

3ST EFFECTIVE WIDTH
 .750 IN. PLATE (AREA=19.64 SQ. IN.)

NOM.	J X LB/FT	ZPL	ZFL	INERTIA	K	YF	AREA	BEAM DIMENSIONS	TF	SHEAR AREA	MAX. SPAN
								D	TW	WF	
2 X	.50	2.51	.55	1.02	.23	1.84	.43	1.500	.125	2.000	.125
2 X	.58	4.23	.76	1.77	.30	2.33	.49	2.000	.125	2.000	.125
3 X	.65	6.41	.98	2.77	.37	2.82	.55	2.500	.125	2.000	.125
3 X	.72	9.07	1.23	4.06	.45	3.30	.62	3.000	.125	2.000	.125
3 X	.72	7.36	1.16	3.25	.40	2.81	.52	2.500	.125	2.500	.125
3 X	.80	10.30	1.43	4.72	.48	3.29	.68	3.000	.125	2.500	.125
3 X	.87	13.72	1.73	6.53	.57	3.77	.74	3.500	.125	2.500	.125
4 X	.94	17.58	2.05	8.71	.65	4.25	.80	4.000	.125	2.500	.125
5 X	1.02	21.86	2.39	11.29	.74	4.73	.87	4.500	.125	2.500	.125
5 X	1.09	26.53	2.74	14.29	.83	5.21	.93	5.000	.125	2.500	.125
5 X	1.13	21.75	2.72	11.49	.75	4.73	.93	4.000	.125	3.000	.160
5 X	1.16	31.56	3.12	17.75	.93	5.69	.99	5.000	.125	2.500	.125
5 X	1.21	26.68	3.14	14.75	.84	4.70	1.03	4.500	.125	3.000	.160
5 X	1.26	31.97	3.58	18.50	.94	5.17	1.09	5.000	.125	3.000	.160
5 X	1.35	37.59	4.04	22.76	1.05	5.64	1.15	5.500	.125	3.000	.160
6 X	1.40	29.60	4.31	17.89	.92	4.15	1.30	4.000	.125	4.000	.220
5 X	1.57	35.05	4.93	22.73	1.14	4.61	1.42	4.500	.125	4.000	.220
5 X	1.67	45.20	4.94	30.00	1.19	6.09	1.43	6.000	.160	3.000	.160
5 X	1.74	42.02	5.56	28.23	1.15	5.08	1.46	5.000	.125	4.000	.220
7 X	1.77	51.65	5.51	36.09	1.30	6.55	1.51	6.500	.160	3.000	.160
5 X	1.82	46.05	6.21	34.43	1.27	5.54	1.55	5.500	.125	4.000	.220
7 X	1.80	56.25	6.10	42.82	1.42	7.01	1.59	7.000	.160	3.000	.160
5 X	1.98	50.93	6.03	30.39	1.31	6.04	1.61	6.000	.160	3.500	.190
7 X	1.98	57.71	6.59	43.45	1.43	6.50	1.69	6.500	.160	3.500	.190
7 X	2.07	64.08	7.37	51.20	1.52	6.96	1.77	7.000	.160	3.500	.190
5 X	2.13	56.46	7.29	43.59	1.42	5.98	1.82	6.000	.160	4.000	.220
7 X	2.22	63.01	8.05	51.62	1.55	6.44	1.90	6.500	.160	4.000	.220
7 X	2.32	70.92	8.64	60.91	1.68	6.89	1.98	7.000	.160	4.000	.220
5 X	2.50	64.13	9.48	55.74	1.60	5.80	2.18	6.000	.160	5.000	.250
7 X	2.65	71.70	10.42	65.96	1.73	6.33	2.26	6.500	.160	5.000	.250
7 X	2.75	73.22	11.36	77.18	1.87	6.78	2.34	7.000	.160	5.000	.250
8 X	3.10	87.88	12.90	92.80	2.04	7.19	2.64	7.500	.190	5.000	.250
8 X	3.21	92.83	13.99	106.79	2.18	7.64	2.74	8.000	.190	5.000	.250
6 X	3.20	73.10	13.10	75.01	1.83	5.73	2.40	6.000	.160	5.000	.313
7 X	3.58	81.37	14.35	86.41	1.98	6.16	2.58	6.500	.160	5.000	.313
7 X	3.47	89.04	15.61	103.05	2.13	6.60	2.66	7.000	.160	5.000	.313
5 X	3.62	98.09	17.41	121.97	2.31	7.01	3.26	7.500	.190	5.000	.313
6 X	3.34	106.47	18.79	135.78	2.46	7.44	3.35	8.000	.190	5.000	.313
9 X	4.34	114.95	20.85	163.25	2.84	7.83	3.70	8.500	.220	5.000	.313
9 X	4.37	123.37	22.37	184.03	2.80	6.25	3.81	9.000	.220	5.000	.313
10 X	4.00	131.01	23.92	207.55	2.97	8.68	3.92	9.500	.220	5.000	.313
9 X	4.76	119.37	25.72	183.02	2.78	7.72	4.10	8.500	.220	5.000	.313
9 X	4.09	127.95	25.41	200.70	2.94	8.13	4.17	8.500	.220	5.000	.313
10 X	5.02	136.55	27.14	232.04	3.11	8.25	4.28	9.000	.220	5.000	.313
9 X	5.42	125.42	26.40	214.17	2.97	7.54	4.62	8.500	.220	7.500	.375
10 X	5.55	145.01	29.75	265.36	3.30	8.92	4.78	10.000	.250	5.000	.375
9 X	5.35	134.21	30.36	241.41	3.14	7.95	4.73	9.000	.220	7.500	.375
11 X	5.64	153.65	31.02	295.04	3.47	9.33	4.81	10.500	.250	6.000	.375
10 X	5.00	143.02	32.36	278.48	3.32	8.36	4.84	9.500	.220	7.500	.375
11 X	5.79	162.24	33.24	320.55	3.64	9.74	4.93	11.000	.250	5.000	.375

3ST EFFECTIVE WIDTH

.750 IN. PLATE (AREA=19.09 SQ. IN.)

NON. J X LB/FT	ZPL	ZFL	INERTIA	R	Y _P	Y _F	----- BEAM DIMENSIONS -----			SHEAR AREA	MAX. SPAN
							AREA	J	TW	WF	TF
11 X 5.92	149.02	33.11	291.21	3.43	1.95	8.80	5.05	10.000	.250	5.000	.438
11 X 6.07	157.74	35.10	323.45	3.01	2.19	9.20	5.17	10.500	.250	5.000	.438
11 X 6.16	151.63	35.23	307.29	3.51	2.03	8.72	5.25	10.000	.250	7.500	.375
11 X 6.21	166.47	37.25	357.62	3.78	2.15	9.60	5.30	11.000	.250	5.000	.438
11 X 6.30	150.42	37.37	341.00	3.69	2.13	9.12	5.37	10.500	.250	7.500	.375
11 X 6.45	163.21	39.55	370.71	3.87	2.23	9.52	5.50	11.000	.250	7.500	.375
12 X 7.36	163.48	43.19	452.42	4.17	2.47	10.28	6.29	12.000	.313	6.000	.438
13 X 7.50	192.17	46.59	495.10	4.35	2.58	10.87	6.45	12.500	.313	5.000	.438
12 X 7.62	186.30	46.52	474.65	4.20	2.55	10.20	6.49	12.000	.313	7.500	.375
13 X 7.80	195.06	49.02	519.37	4.44	2.66	10.59	6.65	12.500	.313	7.500	.375
13 X 7.90	192.07	50.43	531.37	4.40	2.71	10.54	6.80	12.500	.313	6.000	.500
13 X 7.99	203.31	51.56	565.02	4.62	2.76	10.97	6.81	13.000	.313	7.500	.375
13 X 8.10	204.08	53.04	579.18	4.66	2.83	10.52	6.95	13.000	.313	6.000	.500
14 X 8.17	212.56	54.14	614.92	4.80	2.89	11.36	6.90	13.500	.313	7.500	.375
14 X 8.35	213.49	55.09	629.39	4.85	2.95	11.30	7.11	13.500	.313	5.000	.500
12 X 8.41	192.00	54.07	558.27	4.40	2.79	9.96	7.16	12.000	.313	8.000	.438
13 X 8.59	231.55	56.36	587.79	4.67	2.92	10.33	7.32	12.500	.313	9.000	.438
13 X 8.76	210.53	55.74	639.81	4.85	3.14	10.71	7.48	13.000	.313	8.000	.438
14 X 8.96	219.45	52.63	694.36	5.04	3.16	11.09	7.63	13.500	.313	8.000	.438
12 X 8.97	190.05	54.29	560.38	4.61	2.96	9.79	7.64	12.000	.313	8.000	.500
13 X 9.15	205.12	52.32	636.34	4.80	3.09	10.16	7.80	12.500	.313	8.000	.500
13 X 9.34	214.19	55.40	668.91	4.99	3.22	10.53	7.95	13.000	.313	8.000	.500
14 X 9.52	223.27	58.52	747.13	5.16	3.35	10.90	8.11	13.500	.313	8.000	.500

3ST EFFECTIVE MUMH

.875 IN. PLATE (AREA=26.80 SQ. IN.)

NUM. U X LB/FT	ZFL	ZFL	INERTIA	R	YP	YF	----- BEAM DIMENSIONS -----			TF	SHEAR AREA	MAX. SPAN
							AREA	U	IN			
2 X .50	2.40	.58	1.11	.20	.46	1.91	.43	1.500	.125	.125	.30	53.2
2 X .50	4.01	.79	1.89	.26	.47	2.40	.49	2.000	.125	.125	.30	49.3
3 X .65	6.10	1.12	2.94	.33	.48	2.89	.55	2.500	.125	.125	.42	47.3
3 X .72	8.07	1.26	4.27	.39	.49	3.38	.62	3.000	.125	.125	.48	45.8
3 X .72	7.34	1.19	3.44	.35	.49	3.37	.62	2.500	.125	.125	.48	61.7
3 X .80	9.92	1.47	4.90	.42	.50	3.89	.68	3.000	.125	.125	.48	59.5
4 X .87	13.30	1.77	6.84	.50	.51	3.86	.74	3.500	.125	.125	.55	57.9
5 X .94	17.19	2.09	9.09	.57	.53	4.35	.80	4.000	.125	.125	.61	56.6
5 X 1.02	21.50	2.43	11.75	.65	.54	4.83	.87	4.500	.125	.125	.67	55.6
5 X 1.09	26.49	2.79	14.35	.73	.56	5.31	.93	5.000	.125	.125	.73	54.6
4 X 1.13	21.07	2.73	12.00	.60	.55	4.32	.97	4.000	.125	.160	.61	70.1
5 X 1.10	31.78	3.18	16.41	.81	.58	5.80	.99	5.500	.125	.125	.80	53.7
5 X 1.21	26.05	3.20	15.36	.74	.57	4.80	1.03	4.500	.125	.160	.67	68.7
5 X 1.28	32.51	3.64	19.24	.83	.59	5.28	1.09	5.000	.125	.160	.73	67.5
4 X 1.35	38.02	4.10	23.65	.92	.61	5.76	1.15	5.500	.125	.160	.80	66.5
4 X 1.60	30.04	4.40	16.75	.82	.64	4.74	1.30	4.500	.125	.220	.67	98.7
5 X 1.67	37.30	5.01	25.76	.92	.66	6.22	1.42	5.000	.125	.220	.87	96.4
5 X 1.77	47.55	5.82	31.23	1.05	.66	6.22	1.42	6.000	.125	.220	1.10	65.5
7 X 1.74	44.72	5.05	29.45	1.02	.60	5.21	1.48	5.000	.125	.220	.73	94.5
5 X 1.82	51.96	6.31	35.86	1.13	.69	5.68	1.55	6.500	.125	.220	.80	64.6
7 X 1.80	52.49	6.20	44.42	1.25	.71	7.16	1.59	7.000	.160	.220	1.26	63.8
5 X 1.98	54.44	6.13	37.86	1.15	.70	6.18	1.61	6.000	.160	.190	1.10	77.4
7 X 1.96	62.32	6.79	42.17	1.26	.72	6.65	1.69	6.500	.160	.190	1.18	76.4
7 X 2.07	70.54	7.40	53.27	1.37	.76	7.12	1.77	7.000	.160	.220	1.26	76.4
5 X 2.13	61.42	7.41	45.43	1.26	.74	6.14	1.82	6.000	.160	.220	1.10	91.6
7 X 2.22	69.06	8.17	55.97	1.37	.77	6.60	1.90	6.500	.160	.220	1.18	89.3
7 X 2.32	78.04	8.97	63.39	1.48	.81	7.07	2.18	6.000	.160	.250	1.10	119.0
5 X 2.56	71.54	9.62	58.31	1.42	.82	6.66	2.18	6.000	.160	.250	1.18	117.3
7 X 2.55	80.79	10.57	68.94	1.54	.85	6.52	2.26	6.500	.160	.250	1.26	115.8
7 X 2.75	90.29	11.54	80.00	1.60	.89	6.98	2.34	7.000	.160	.250	1.26	114.5
5 X 3.10	104.13	13.09	97.04	1.82	.96	7.42	2.64	7.000	.190	.250	1.59	113.3
5 X 3.21	111.12	14.18	111.63	1.94	1.00	7.87	2.74	8.000	.190	.250	1.69	113.3
5 X 3.28	114.29	14.30	116.35	1.93	.94	7.94	2.80	6.000	.160	.313	1.10	148.0
7 X 3.38	94.43	14.35	92.97	1.77	.98	6.39	2.80	6.500	.160	.313	1.18	145.6
7 X 3.47	104.81	15.83	108.29	1.91	1.03	6.84	2.96	7.000	.160	.313	1.26	143.5
8 X 3.62	115.66	17.55	126.30	2.07	1.11	7.27	3.26	7.500	.190	.313	1.59	141.8
8 X 3.74	126.50	18.05	146.97	2.21	1.16	7.71	3.35	8.000	.190	.313	1.59	140.2
9 X 4.34	137.92	21.15	171.90	2.37	1.25	8.13	3.70	8.500	.220	.313	2.06	136.7
3 X 4.77	140.83	22.09	194.39	2.52	1.31	8.57	3.81	9.000	.220	.313	2.17	137.4
10 X 4.80	159.02	24.26	218.51	2.67	1.37	9.01	3.92	9.500	.220	.313	2.28	136.2
9 X 4.70	144.69	24.05	193.30	2.50	1.34	8.04	4.06	8.500	.220	.375	2.66	138.7
9 X 4.69	155.01	25.77	210.34	2.65	1.40	8.47	4.17	9.000	.220	.375	2.66	137.4
10 X 5.32	167.05	27.51	245.08	2.81	1.47	8.91	4.68	9.500	.220	.375	2.28	136.2
10 X 5.42	173.91	28.79	227.40	2.69	1.48	7.90	4.68	8.500	.250	.375	2.36	136.4
10 X 5.25	178.27	30.10	260.70	2.93	1.57	9.30	4.68	10.000	.250	.375	2.72	135.0
9 X 5.35	165.42	30.78	256.26	2.85	1.55	8.36	4.73	9.000	.220	.375	2.17	176.5
11 X 5.04	169.83	32.09	312.22	3.14	1.64	9.73	4.81	10.500	.250	.375	2.64	134.0
11 X 5.00	170.47	32.50	267.10	3.01	1.62	8.75	4.84	9.500	.220	.375	2.28	176.8
11 X 5.79	291.21	34.03	345.62	3.30	1.72	13.16	4.93	11.000	.250	.375	2.97	132.9

35T EFFECTIVE WIDTH

.875 IN. PLATE (AREA=26.8J SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	BEAM DIMENSIONS TW	WF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	184.69	33.59	309.11	3.12	1.67	9.20	5.05	10.000	.250	9.000	.438	2.72	135.0
11 X 6.37	176.19	35.67	343.54	3.28	1.75	9.52	5.17	10.500	.250	9.000	.438	2.72	135.0
11 X 6.10	188.57	35.73	326.69	3.19	1.73	9.14	5.25	10.500	.250	7.500	.375	2.72	172.2
11 X 6.21	207.71	37.79	379.66	3.44	1.83	10.05	5.30	11.000	.250	6.000	.438	2.97	135.9
11 X 6.30	200.10	37.91	362.55	3.30	1.81	9.50	5.37	10.500	.250	7.500	.375	2.97	172.4
11 X 6.45	211.77	40.12	400.56	3.52	1.89	9.98	5.50	11.000	.250	7.500	.375	2.97	172.4
12 X 7.38	230.75	44.72	462.33	3.82	2.09	10.78	6.29	12.000	.313	6.000	.438	4.03	131.0
13 X 7.50	242.25	47.17	526.00	3.99	2.18	11.20	6.45	12.500	.313	6.000	.438	4.19	131.0
12 X 7.62	234.86	47.29	506.77	3.90	2.16	10.72	6.49	12.000	.313	7.500	.375	4.03	169.9
13 X 7.80	246.45	49.65	554.37	4.07	2.25	11.13	6.55	12.500	.313	7.500	.375	4.19	169.9
13 X 7.98	247.64	51.27	568.18	4.11	2.29	11.08	6.50	12.500	.313	5.000	.500	4.19	130.1
13 X 7.39	258.04	52.42	604.49	4.24	2.34	11.53	6.81	13.000	.313	7.500	.375	4.34	167.7
13 X 8.16	259.49	53.93	619.50	4.28	2.39	11.49	6.95	13.000	.313	8.000	.500	4.34	129.2
14 X 8.17	269.63	55.63	675.41	4.41	2.44	11.74	6.90	13.500	.313	7.500	.375	4.50	166.7
14 X 8.35	271.15	56.63	675.41	4.46	2.46	11.89	7.11	13.500	.313	5.000	.500	4.50	128.4
12 X 8.41	244.42	54.95	577.60	4.12	2.36	10.91	7.16	12.000	.313	8.000	.438	4.03	183.2
13 X 8.59	250.25	57.81	650.89	4.50	2.40	10.91	7.32	12.500	.313	8.000	.438	4.19	181.0
13 X 8.78	268.09	50.72	686.90	4.48	2.56	11.31	7.48	13.000	.313	8.000	.438	4.34	180.8
14 X 8.96	279.93	53.67	745.06	4.65	2.66	11.71	7.63	13.500	.313	8.000	.438	4.50	179.7
12 X 9.37	243.70	54.25	624.97	4.26	2.50	10.37	7.54	12.000	.313	8.000	.500	4.03	183.2
13 X 9.15	261.75	53.34	682.13	4.44	2.61	10.77	7.80	12.500	.313	8.000	.500	4.19	182.0
13 X 9.34	273.74	50.48	742.14	4.62	2.71	11.16	7.95	13.000	.313	8.000	.500	4.34	180.8
14 X 9.52	265.74	59.06	605.05	4.80	2.82	11.56	8.11	13.500	.313	9.000	.500	4.50	179.7

3ST EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=35.00 SQ. IN.)

NOM.		BEAM DIMENSIONS										SHEAR AREA	MAX. SPAN
J X	LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	IM	WF	TF	
2 X	.50	2.30	.50	1.19	.10	.52	1.98	.43	1.500	.125	2.000	.125	53.2
2 X	.56	3.02	.81	2.01	.24	.53	2.47	.49	2.000	.125	2.000	.125	49.3
3 X	.65	5.00	1.05	3.10	.30	.53	2.97	.55	2.500	.125	2.000	.125	47.3
3 X	.72	8.25	1.30	4.48	.35	.54	3.46	.62	3.000	.125	2.000	.125	45.8
3 X	.72	9.71	1.22	5.62	.32	.54	3.46	.62	2.500	.125	2.500	.125	44.8
3 X	.80	9.46	1.51	5.20	.38	.55	3.45	.68	3.000	.125	2.500	.125	41.7
4 X	.87	12.73	1.81	7.13	.45	.56	3.94	.74	3.500	.125	2.500	.125	51.5
4 X	.94	10.53	2.13	9.45	.51	.57	4.43	.80	4.100	.125	2.500	.125	56.6
5 X	1.02	20.07	2.40	12.19	.58	.58	4.92	.87	4.500	.125	2.500	.125	55.6
5 X	1.09	25.73	2.84	15.37	.65	.60	5.40	.93	5.000	.125	2.500	.125	54.8
5 X	1.13	21.10	2.83	12.48	.59	.59	4.41	.97	4.100	.125	3.000	.160	70.1
5 X	1.16	31.12	3.23	19.02	.75	.61	5.09	.99	5.200	.125	2.500	.125	53.7
5 X	1.21	26.31	3.20	19.31	.67	.61	4.89	1.03	4.500	.125	3.000	.160	68.7
5 X	1.26	32.00	3.70	19.91	.72	.62	5.38	1.09	5.000	.125	3.000	.160	67.5
5 X	1.35	30.55	4.17	24.44	.82	.64	5.80	1.15	5.200	.125	3.000	.160	86.5
5 X	1.50	30.05	4.48	19.54	.73	.64	4.36	1.36	4.000	.125	4.000	.220	95.7
5 X	1.57	37.50	5.10	24.09	.82	.66	4.84	1.42	4.500	.125	4.000	.220	96.4
6 X	1.67	49.32	5.10	32.29	.94	.67	6.33	1.43	5.000	.160	3.000	.160	65.5
5 X	1.74	45.10	5.74	30.55	.92	.68	5.32	1.48	5.600	.125	4.000	.220	94.5
7 X	1.77	55.32	5.58	36.69	1.03	.69	6.81	1.51	6.500	.160	3.000	.160	64.6
7 X	1.82	53.12	6.40	37.13	1.01	.70	5.80	1.55	5.500	.125	4.000	.220	93.0
7 X	1.86	64.12	6.29	45.83	1.12	.71	7.29	1.59	7.000	.160	3.000	.160	63.8
5 X	1.98	55.72	6.22	39.17	1.03	.73	6.30	1.61	6.000	.160	3.500	.190	78.4
7 X	1.98	64.30	6.89	46.07	1.13	.73	6.77	1.59	6.500	.160	3.500	.190	77.4
7 X	2.07	73.30	7.59	55.00	1.22	.75	7.25	1.77	7.000	.160	3.500	.190	76.4
5 X	2.13	63.70	7.21	47.05	1.13	.74	6.26	1.82	6.000	.160	4.000	.220	91.6
7 X	2.22	73.12	8.29	55.83	1.23	.76	6.74	1.90	6.500	.160	4.000	.220	90.4
7 X	2.32	92.93	9.09	65.52	1.33	.79	7.21	1.98	7.000	.160	4.000	.220	89.3
5 X	2.56	75.84	9.76	60.52	1.29	.80	6.20	2.18	6.000	.160	5.000	.250	113.0
7 X	2.56	80.31	10.71	71.47	1.33	.83	6.67	2.20	6.500	.160	5.000	.250	117.3
7 X	2.75	97.19	11.09	85.49	1.50	.86	7.14	2.34	7.000	.160	5.000	.250	115.8
5 X	3.13	110.22	13.26	100.59	1.63	.91	7.59	2.54	7.500	.190	5.000	.250	114.5
8 X	3.21	121.95	14.56	115.65	1.75	.95	8.05	2.74	8.000	.190	5.000	.250	113.3
5 X	3.28	91.85	13.40	82.28	1.48	.90	6.14	2.66	6.000	.160	5.000	.313	148.0
7 X	3.33	103.70	14.74	96.78	1.60	.93	6.57	2.68	6.500	.160	5.000	.313	145.6
7 X	3.47	115.89	16.02	112.62	1.72	.97	7.03	2.90	7.000	.160	5.000	.313	143.5
5 X	3.52	123.44	17.07	133.20	1.87	1.03	7.47	3.20	7.500	.190	5.000	.313	141.8
5 X	3.94	142.29	19.28	152.84	2.00	1.07	7.93	3.35	8.000	.190	5.000	.313	140.2
5 X	4.34	156.51	21.41	170.93	2.15	1.14	8.36	3.70	8.500	.220	5.000	.313	138.7
5 X	4.47	169.04	22.90	202.28	2.28	1.19	8.81	3.81	9.000	.220	5.000	.313	137.4
10 X	4.80	183.34	24.55	227.32	2.42	1.24	9.26	3.92	9.500	.220	5.000	.313	136.2
5 X	4.70	155.77	24.35	201.72	2.27	1.22	8.28	4.06	8.500	.220	5.000	.375	138.7
5 X	4.89	173.52	26.88	227.72	2.41	1.27	8.73	4.17	9.000	.220	5.000	.375	137.4
10 X	5.02	193.41	27.84	255.54	2.55	1.32	9.10	4.28	9.500	.220	5.000	.375	135.2
10 X	5.72	178.75	29.14	236.30	2.45	1.33	8.17	4.62	8.500	.220	7.500	.375	160.4
10 X	5.50	200.26	30.56	293.11	2.72	1.41	9.29	4.58	10.000	.250	5.000	.375	135.0
5 X	5.55	193.31	31.15	263.20	2.60	1.39	8.61	4.73	9.000	.220	7.500	.375	178.5
11 X	5.07	222.39	32.48	325.91	2.80	1.47	10.03	4.81	10.500	.250	5.000	.375	134.0
10 X	5.68	207.40	33.18	300.37	2.75	1.45	9.05	4.84	9.500	.220	7.500	.375	176.8
11 X	5.79	230.01	34.44	360.77	3.01	1.52	10.48	4.93	11.000	.250	6.000	.375	132.9

3ST EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=35.00 SQ. IN.)

NUM. J X L/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			TF	SHEAR AREA	MAX. SPAN
							AREA	D	YW			
10 X 5.32	215.95	34.01	323.39	2.84	1.49	9.51	5.05	10.000	.250	5.000	.438	135.0
11 X 6.37	231.37	30.11	359.17	2.99	1.55	9.95	5.17	10.500	.250	5.000	.438	134.0
12 X 6.10	222.54	36.17	342.17	2.92	1.54	9.46	5.25	10.000	.250	7.500	.375	175.2
11 X 6.21	242.87	30.24	397.14	3.14	1.52	10.58	5.30	11.000	.250	5.000	.438	132.9
11 X 6.30	236.90	38.36	379.09	3.07	1.50	9.90	5.37	10.500	.250	7.500	.375	173.8
11 X 6.45	251.53	40.60	419.47	3.22	1.67	10.33	5.50	11.000	.250	7.500	.375	172.4
12 X 7.38	276.02	42.32	500.09	3.50	1.83	11.17	6.29	12.000	.313	5.000	.438	131.0
13 X 7.50	290.03	47.80	554.17	3.60	1.91	11.59	6.45	12.500	.313	5.000	.438	130.1
12 X 7.52	281.71	47.91	532.30	3.58	1.89	11.11	6.49	12.000	.313	7.500	.375	169.9
13 X 7.30	290.43	50.49	582.38	3.74	1.90	11.54	6.65	12.500	.313	7.500	.375	168.0
13 X 7.35	298.00	51.55	597.41	3.70	2.00	11.56	6.80	12.500	.313	5.000	.500	130.1
13 X 7.39	311.18	53.11	655.14	3.90	2.04	11.92	6.81	13.000	.313	7.500	.375	167.7
13 X 8.10	313.43	54.05	621.40	3.94	2.08	11.92	6.92	13.000	.313	5.000	.500	129.2
14 X 8.17	325.94	55.78	690.61	4.05	2.12	12.36	6.96	13.500	.313	7.500	.375	166.7
14 X 8.35	328.28	57.39	708.29	4.10	2.10	12.34	7.11	13.500	.313	6.000	.500	128.4
12 X 8.41	295.41	55.56	668.90	3.80	2.06	10.94	7.10	12.000	.313	8.000	.438	183.2
13 X 8.59	310.40	58.50	805.15	3.90	2.14	11.30	7.32	12.500	.313	8.000	.438	182.0
13 X 8.78	325.54	51.51	724.29	4.13	2.22	11.78	7.48	13.000	.313	8.000	.438	180.8
14 X 8.30	340.02	54.50	780.38	4.29	2.31	12.19	7.63	13.500	.313	8.000	.438	179.7
12 X 9.37	300.22	51.04	900.53	3.94	2.18	10.82	7.54	12.500	.313	8.000	.500	183.2
13 X 9.15	318.49	54.17	721.00	4.10	2.26	11.24	7.80	12.500	.313	8.000	.500	182.0
13 X 9.34	333.76	57.34	784.51	4.27	2.35	11.65	7.95	13.000	.313	8.000	.500	180.8
14 X 9.52	349.05	70.56	851.12	4.44	2.44	12.06	8.11	13.500	.313	8.000	.500	179.7

TABLE 2

EFFECTIVE PLATING WIDTH = 8"

1/4" -1" PLATE THICKNESSES

MAX FLANGE WIDTH = 4"

8.3 IN. EFFECTIVE WIDTH

.250 IN. PLATE (AREA= 2.00 SQ. IN.)

NOM.	LOAD	ZPL	ZFL	INERTIA	K	YP	YF	AREA	D	BEAM DIMENSIONS	WF	TF	SHEAR AREA	MAX. SPAN
2 X	.53	1.85	.45	.63	.51	.34	1.41	.43	1.500	.125	2.000	.125	.22	53.2
2 X	.58	2.08	.04	1.16	.62	.43	1.82	.49	2.000	.125	2.000	.125	.28	49.3
3 X	.65	3.54	.84	1.88	.80	.53	2.22	.55	2.500	.125	2.000	.125	.34	47.3
3 X	.72	4.41	1.37	2.79	1.03	.63	2.62	.62	3.000	.125	2.000	.125	.41	42.8
3 X	.72	3.72	1.00	2.16	.91	.58	2.17	.62	2.500	.125	2.500	.125	.34	61.7
3 X	.80	4.60	1.25	3.19	.99	.69	2.50	.68	3.000	.125	2.500	.125	.41	59.5
4 X	.87	5.50	1.52	4.46	1.28	.81	2.94	.74	3.500	.125	2.500	.125	.47	57.9
4 X	.94	6.39	1.81	5.98	1.46	.94	3.31	.80	4.000	.125	2.500	.125	.53	56.6
5 X	1.02	7.29	2.11	7.77	1.65	1.07	3.68	.87	4.500	.125	2.500	.125	.59	55.6
5 X	1.09	8.19	2.43	9.84	1.83	1.20	4.05	.93	5.000	.125	2.500	.125	.66	54.6
5 X	1.13	6.80	2.41	7.56	1.60	1.11	3.14	.87	4.000	.125	3.000	.160	.53	76.1
5 X	1.21	7.74	2.79	9.74	1.79	1.34	3.49	.99	4.500	.125	2.500	.125	.72	53.7
5 X	1.28	8.68	3.18	12.23	1.99	1.26	3.84	1.09	5.000	.125	3.000	.160	.59	64.7
5 X	1.35	9.62	3.59	15.35	2.16	1.46	4.19	1.15	5.500	.125	3.000	.160	.66	67.5
5 X	1.60	7.29	3.83	10.67	1.78	1.04	2.79	1.36	4.000	.125	4.000	.220	.53	96.7
5 X	1.67	8.29	4.39	13.63	2.00	1.42	3.11	1.42	4.500	.125	4.000	.220	.59	96.4
5 X	1.67	10.61	4.32	19.19	2.37	1.31	4.44	1.43	8.000	.160	3.000	.160	1.60	65.5
5 X	1.74	9.33	4.96	16.99	2.21	1.83	3.42	1.48	5.000	.125	4.000	.220	.66	94.5
7 X	1.77	11.58	4.81	22.94	2.56	1.98	4.77	1.51	6.500	.160	3.000	.160	1.08	64.6
5 X	1.82	10.31	5.55	20.75	2.42	2.01	3.74	1.53	5.500	.125	4.000	.220	.72	93.0
7 X	1.86	12.50	5.32	27.09	2.75	2.16	5.09	1.59	7.000	.160	3.000	.160	1.16	63.8
5 X	1.88	11.15	5.29	22.36	2.49	2.02	4.23	1.61	6.000	.160	3.500	.190	1.00	78.4
7 X	1.98	12.06	5.66	26.63	2.69	2.21	4.54	1.69	8.500	.160	3.500	.190	1.08	77.4
7 X	2.07	13.08	6.45	31.31	2.88	2.39	4.86	1.77	7.000	.160	3.500	.190	1.16	76.4
5 X	2.13	11.41	6.41	29.65	2.59	2.25	4.00	1.82	6.000	.160	4.000	.220	1.00	91.6
7 X	2.22	12.45	7.67	30.45	2.60	2.45	4.30	1.86	6.500	.160	4.000	.220	1.08	90.4
7 X	2.32	13.51	7.75	35.71	3.00	2.64	4.61	1.98	7.000	.160	4.000	.220	1.16	89.3

8.0 IN. EFFECTIVE WIDTH
 .313 IN. PLATE (AREA= 2.50 SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	IN		
2 X .50	2.00	.46	.68	.48	.34	1.47	.43	1.500	.125	.125	53.2
2 X .58	2.97	.66	1.24	.64	.42	1.89	.49	2.000	.125	.125	49.3
3 X .55	3.99	.86	2.00	.81	.50	2.31	.55	2.500	.125	.125	47.3
3 X .72	5.04	1.09	2.97	.98	.59	2.72	.62	3.000	.125	.125	45.8
3 X .72	4.23	1.02	2.31	.80	.55	2.27	.62	2.500	.125	.125	61.7
3 X .80	5.31	1.27	3.40	1.03	.64	2.67	.68	3.000	.125	.125	59.5
4 X .87	6.39	1.55	4.75	1.21	.74	3.07	.74	3.500	.125	.125	57.9
4 X .94	7.48	1.84	6.37	1.39	.85	3.46	.80	4.000	.125	.125	56.6
5 X 1.02	8.57	2.15	8.27	1.57	.97	3.85	.87	4.500	.125	.125	55.6
5 X 1.09	9.07	2.48	10.47	1.75	1.06	4.25	.93	5.000	.125	.125	54.0
4 X 1.13	8.04	2.46	8.11	1.53	1.01	3.50	.97	4.000	.125	.125	54
5 X 1.10	10.77	2.82	12.99	1.93	1.21	4.01	.99	5.500	.125	.125	53.7
5 X 1.21	9.10	2.84	10.44	1.72	1.14	3.67	1.03	4.500	.125	.125	68.7
5 X 1.28	10.32	3.24	13.11	1.91	1.27	4.04	1.09	5.000	.125	.125	67.5
5 X 1.35	11.47	3.66	16.13	2.10	1.41	4.41	1.15	5.500	.125	.125	66.5
4 X 1.60	6.73	3.90	11.03	1.74	1.35	2.98	1.36	4.000	.125	.125	99.7
5 X 1.67	9.95	4.47	14.84	1.95	1.49	3.52	1.42	4.500	.125	.125	90.4
5 X 1.67	12.03	4.42	20.65	2.29	1.94	4.68	1.43	6.000	.160	.160	65.5
5 X 1.74	11.17	5.65	18.48	2.15	1.66	3.06	1.40	5.000	.125	.125	94.5
7 X 1.77	13.79	4.92	24.70	2.46	1.79	5.02	1.51	6.500	.160	.160	64.6
5 X 1.82	12.39	5.55	22.56	2.36	1.82	3.99	1.55	5.500	.125	.125	93.0
7 X 1.86	14.96	5.44	29.18	2.67	1.95	5.36	1.59	7.000	.160	.160	63.8
6 X 1.88	13.19	5.41	24.21	2.43	1.84	4.48	1.61	6.000	.160	.160	78.4
7 X 1.98	14.39	5.99	28.82	2.62	2.00	4.81	1.59	8.500	.160	.160	77.4
7 X 2.07	15.61	6.59	33.90	2.82	2.17	5.14	1.77	7.000	.160	.160	76.4
5 X 2.13	13.65	6.55	27.94	2.54	2.05	4.27	1.92	6.000	.160	.160	91.6
7 X 2.22	14.90	7.23	33.16	2.75	2.23	4.59	1.90	6.500	.160	.160	90.4
7 X 2.32	16.15	7.92	38.88	2.95	2.41	4.91	1.98	7.000	.160	.160	89.3

8.0 IN. EFFECTIVE WIDTH
 .375 IN. PLATE (AREA= 3.00 SQ. IN.)

NUM. J X	LB/FT	ZPL	ZFL	INERTIA	R	YF	AREA	U	BEAM DIMENSIONS TW	WF	TF	SHEAR AREA	MAX. SPAN
2 X	.50	2.08	.48	.73	.46	1.92	.43	1.200	.125	2.000	.125	.23	53.2
2 X	.58	3.16	.67	1.31	.61	1.96	.49	2.000	.125	2.000	.125	.30	49.3
3 X	.55	4.31	.88	2.10	.77	2.39	.55	2.500	.125	2.000	.125	.36	47.3
3 X	.72	5.52	1.11	3.12	.93	2.81	.62	3.000	.125	2.000	.125	.42	45.8
3 X	.80	6.61	1.04	2.44	.82	2.35	.52	2.200	.125	2.500	.125	.36	61.7
3 X	.87	5.85	1.30	3.59	.99	2.76	.68	3.000	.125	2.500	.125	.42	59.5
4 X	.84	7.11	1.58	5.00	1.16	3.17	.74	3.500	.125	2.500	.125	.48	57.9
4 X	1.02	8.39	1.87	6.70	1.33	3.58	.81	4.000	.125	2.500	.125	.52	56.6
5 X	1.09	9.07	2.19	8.89	1.50	3.98	.87	4.500	.125	2.500	.125	.61	55.6
5 X	1.13	10.90	2.52	11.00	1.67	4.37	.93	5.000	.125	2.500	.125	.67	54.6
5 X	1.16	12.25	2.87	13.84	1.85	4.76	.99	5.500	.125	3.000	.160	.55	70.1
5 X	1.21	10.45	2.89	11.03	1.84	3.82	1.03	4.500	.125	2.500	.160	.73	53.7
5 X	1.28	11.79	3.29	13.84	2.02	4.20	1.09	5.000	.125	3.000	.160	.61	68.7
5 X	1.35	13.14	3.72	17.03	2.52	4.58	1.15	5.500	.125	3.000	.160	.67	67.5
7 X	1.50	10.05	3.96	12.43	1.89	3.14	1.36	4.000	.125	4.000	.220	.55	98.7
5 X	1.67	11.47	4.54	15.86	1.89	3.49	1.42	4.200	.125	4.000	.220	.61	96.4
5 X	1.67	14.49	4.49	21.87	2.22	4.87	1.43	6.000	.160	3.000	.160	1.32	85.5
5 X	1.74	12.90	5.13	19.73	2.10	3.85	1.48	5.000	.125	4.000	.220	.67	94.5
7 X	1.77	15.85	5.01	20.16	2.51	5.22	1.51	6.500	.160	3.000	.160	1.10	64.6
5 X	1.82	14.33	5.74	24.08	2.30	4.20	1.55	5.500	.125	4.000	.220	.73	93.0
7 X	1.86	17.21	5.54	30.92	2.50	5.58	1.59	7.000	.160	3.000	.160	1.18	63.8
5 X	1.98	15.19	5.50	25.75	2.56	4.68	1.51	6.000	.160	3.500	.190	1.02	78.4
7 X	2.07	16.59	6.10	30.65	2.56	5.03	1.59	6.200	.160	3.500	.190	1.10	77.4
7 X	2.07	16.00	6.71	30.06	2.75	5.37	1.77	7.000	.160	3.500	.190	1.18	76.4
6 X	2.13	15.78	6.66	29.86	2.49	4.48	1.82	6.000	.160	4.000	.220	1.02	91.6
7 X	2.22	17.22	7.55	35.43	2.69	4.82	1.90	6.500	.160	4.000	.220	1.10	90.4
7 X	2.32	18.68	8.06	41.54	2.99	5.15	1.98	7.000	.160	4.000	.220	1.18	89.3

8.0 IN. EFFECTIVE WIDTH
.438 IN. PLATE (AREA= 3.50 SQ. IN.)

NUM.. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TF		
2 X .50	2.12	.49	.77	.44	.36	1.57	.43	1.200	.125	.125	53.2
2 X .50	3.27	.68	1.38	.59	.42	2.02	.49	2.000	.125	.125	49.3
3 X .65	4.53	.90	2.20	.74	.49	2.45	.55	2.500	.125	.125	47.3
3 X .72	5.80	1.13	3.20	.89	.56	2.88	.62	3.000	.125	.125	45.8
3 X .72	4.89	1.06	2.55	.79	.52	2.42	.62	2.500	.125	.125	61.7
3 X .80	6.27	1.32	3.75	.95	.60	2.84	.68	3.000	.125	.125	59.5
4 X .87	7.69	1.60	5.22	1.11	.68	3.26	.74	3.500	.125	.125	57.9
4 X .94	9.13	1.90	6.98	1.27	.76	3.67	.80	4.000	.125	.125	56.6
5 X 1.02	10.60	2.22	9.05	1.44	.85	4.08	.87	4.500	.125	.125	55.0
5 X 1.09	12.07	2.55	11.46	1.61	.95	4.49	.93	5.000	.125	.125	54.6
4 X 1.13	13.03	2.53	8.97	1.42	.89	3.24	.97	4.000	.125	.160	70.1
6 X 1.16	13.55	2.91	14.20	1.76	1.05	4.69	.99	5.500	.125	.125	53.7
5 X 1.21	11.56	2.93	11.53	1.60	1.00	3.94	1.03	4.500	.125	.160	68.7
5 X 1.28	13.09	3.34	14.47	1.78	1.10	4.83	1.09	5.000	.125	.160	67.5
6 X 1.35	14.63	3.77	17.80	1.96	1.22	4.72	1.15	5.500	.125	.160	66.5
7 X 1.40	11.24	4.62	13.14	1.84	1.17	3.27	1.36	4.000	.125	.220	93.7
5 X 1.67	12.56	4.60	16.73	1.84	1.30	3.04	1.42	4.500	.125	.220	96.4
9 X 1.67	16.19	4.56	22.92	2.10	1.42	5.02	1.43	6.000	.160	.160	65.5
9 X 1.74	14.50	5.20	20.81	2.34	1.44	4.00	1.48	5.000	.125	.220	94.5
7 X 1.77	17.74	5.38	27.42	2.34	1.55	5.39	1.51	6.500	.160	.160	64.6
9 X 1.82	16.14	5.81	25.37	2.24	1.57	4.37	1.55	5.500	.125	.220	93.0
7 X 1.86	19.30	5.53	32.40	2.52	1.68	5.76	1.59	7.000	.160	.160	63.8
5 X 1.88	17.05	5.58	27.07	2.30	1.59	4.65	1.51	6.000	.160	.190	78.4
7 X 1.96	18.05	6.19	32.23	2.49	1.73	5.21	1.69	6.500	.160	.190	77.4
7 X 2.07	20.25	6.81	37.41	2.68	1.87	5.57	1.77	7.000	.160	.190	76.4
6 X 2.13	17.77	7.46	31.52	2.44	1.77	4.66	1.82	6.000	.160	.220	91.6
7 X 2.22	19.42	7.46	37.39	2.63	1.83	5.01	1.80	6.500	.160	.220	90.4
7 X 2.32	21.07	8.18	43.83	2.83	2.08	5.36	1.98	7.000	.160	.220	89.3

8.0 IN. EFFECTIVE WIDTH
 .500 IN. PLATE (AREA= 4.00 SQ. IN.)

NOM. U X LB/FT		ZPL	ZFL	INERTIA	K	Y _P	Y _F	AREA	U	UEAM DIMENSIONS	TF	SHEAR AREA	MAX. SPAN
										IN	WF		
2 X .50	2.13	.50	.81	.43	.38	1.62	.43	1.500	.125	2.000	.125	.25	53.2
2 X .58	3.33	.70	1.44	.57	.43	2.07	.49	2.000	.125	2.000	.125	.31	49.3
3 X .65	4.66	.91	2.29	.71	.49	2.51	.55	2.500	.125	2.000	.125	.38	47.3
3 X .72	6.10	1.15	3.38	.80	.55	2.95	.62	3.000	.125	2.000	.125	.44	45.8
3 X .80	7.57	1.48	4.72	.90	.62	3.38	.68	3.500	.125	2.500	.125	.44	45.8
4 X .87	9.07	1.84	6.57	.91	.69	3.81	.74	4.000	.125	2.500	.125	.50	57.9
4 X .94	10.51	2.25	8.41	1.07	.67	4.24	.80	4.500	.125	2.500	.125	.56	56.6
5 X 1.02	11.90	2.65	10.23	1.23	.74	4.67	.87	5.000	.125	2.500	.125	.63	55.6
5 X 1.09	13.30	3.06	12.06	1.39	.83	5.10	.93	5.500	.125	2.500	.125	.69	54.6
5 X 1.13	14.70	3.47	13.90	1.55	.91	5.53	.97	6.000	.125	3.000	.160	.75	70.1
5 X 1.16	16.10	3.88	15.74	1.72	.98	5.96	.99	6.500	.125	2.500	.125	.83	68.7
5 X 1.21	17.51	4.29	17.58	1.94	.90	6.39	1.03	7.000	.125	3.000	.160	.89	67.5
5 X 1.26	18.92	4.70	19.42	2.12	1.06	6.82	1.09	7.500	.125	3.000	.160	.95	66.5
5 X 1.35	20.33	5.11	21.26	2.30	1.16	7.25	1.15	8.000	.125	3.000	.160	.95	66.5
5 X 1.40	21.74	5.52	23.10	2.48	1.24	7.68	1.24	8.500	.125	4.000	.220	.95	98.7
5 X 1.47	23.15	5.93	24.94	2.66	1.34	8.11	1.36	9.000	.160	4.000	.220	.95	96.4
5 X 1.55	24.56	6.34	26.78	2.84	1.36	8.54	1.43	9.500	.160	4.000	.220	1.04	95.5
5 X 1.60	25.97	6.75	28.62	3.02	1.46	8.97	1.48	10.000	.160	4.000	.220	1.12	94.5
6 X 1.77	27.38	7.16	30.46	3.20	1.49	9.40	1.51	10.500	.160	4.000	.220	1.12	94.5
6 X 1.82	28.79	7.57	32.30	3.38	1.59	9.83	1.55	11.000	.160	4.000	.220	.75	93.0
7 X 1.88	30.20	7.98	34.14	3.56	1.59	10.26	1.59	11.500	.160	3.000	.160	1.20	93.8
7 X 1.93	31.61	8.39	35.98	3.74	1.59	10.69	1.59	12.000	.160	3.000	.160	1.04	70.4
7 X 2.07	33.02	8.80	37.82	3.92	1.94	11.12	1.51	12.500	.160	3.500	.190	1.12	77.4
7 X 2.13	34.43	9.21	39.66	4.10	1.77	11.55	1.77	13.000	.160	3.500	.190	1.20	70.4
7 X 2.22	35.84	9.62	41.50	4.28	1.82	11.98	1.82	13.500	.160	4.000	.220	1.04	91.6
7 X 2.32	37.25	10.03	43.34	4.46	1.82	12.41	1.90	14.000	.160	4.000	.220	1.12	90.4
7 X 2.32	38.66	10.44	45.18	4.64	1.97	12.84	1.98	14.500	.160	4.000	.220	1.20	89.3

8.0 IN. EFFECTIVE WIDTH

.625 IN. PLATE (AREA= 5.00 SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
								U	TW	HF	TF		
2 X .50	2.11	.53	.90	.41	.42	1.70	.43	1.500	.125	2.000	.125	.27	53.2
2 X .58	3.34	.73	1.57	.53	.47	2.16	.49	2.000	.125	2.000	.125	.33	49.3
3 X .65	4.77	.95	2.47	.67	.52	2.61	.55	2.500	.125	2.000	.125	.39	47.3
3 X .72	6.35	1.18	3.62	.80	.55	3.06	.62	3.000	.125	2.000	.125	.45	45.8
3 X .80	8.93	1.11	2.81	.71	.55	2.58	.62	2.500	.125	2.500	.125	.39	61.7
3 X .80	8.93	1.38	4.17	.66	.50	3.02	.58	3.000	.125	2.500	.125	.45	59.5
4 X .97	10.70	1.07	5.77	1.00	.66	3.46	.74	3.500	.125	2.500	.125	.52	57.9
4 X .94	10.55	1.98	7.09	1.15	.73	3.90	.80	4.000	.125	2.500	.125	.56	56.6
5 X 1.02	12.42	2.30	9.95	1.30	.80	4.33	.87	4.500	.125	2.500	.125	.64	55.6
5 X 1.09	14.41	2.05	12.57	1.46	.87	4.75	.93	5.000	.125	2.500	.125	.70	54.6
5 X 1.13	11.90	2.03	9.97	1.29	.83	3.79	.97	4.000	.125	3.000	.100	.58	70.1
5 X 1.16	10.39	3.01	15.57	1.61	.95	5.18	.99	5.500	.125	2.500	.125	.77	53.7
5 X 1.21	13.78	3.03	12.77	1.46	.91	4.21	1.13	4.500	.125	3.000	.100	.64	68.7
5 X 1.28	10.04	3.45	15.95	1.62	1.00	4.63	1.09	5.000	.125	3.000	.160	.70	67.5
6 X 1.35	18.12	3.90	19.04	1.79	1.08	5.04	1.15	5.500	.125	3.000	.150	.77	66.5
6 X 1.50	14.04	4.17	14.86	1.53	1.06	3.57	1.36	4.000	.125	4.000	.220	.58	98.7
5 X 1.57	16.23	4.76	18.86	1.71	1.16	3.96	1.42	4.500	.125	4.000	.220	.64	98.4
5 X 1.67	20.35	5.37	25.43	1.99	1.25	4.36	1.43	5.000	.125	3.000	.150	1.66	65.5
5 X 1.74	18.44	5.27	30.41	1.90	1.25	4.76	1.48	5.000	.125	4.000	.220	.70	94.5
5 X 1.82	22.46	5.60	28.48	2.16	1.35	5.77	1.51	5.500	.125	3.000	.150	1.14	64.6
5 X 1.86	20.07	5.63	35.94	2.03	1.38	4.75	1.55	6.000	.125	4.000	.220	.77	93.6
7 X 1.86	24.56	5.63	35.94	2.34	1.46	6.16	1.59	7.000	.160	3.000	.150	1.22	63.8
7 X 1.88	21.71	5.78	30.25	2.14	1.39	5.23	1.61	8.000	.160	3.500	.190	1.06	78.4
7 X 1.98	23.69	6.40	35.98	2.82	1.51	5.62	1.59	6.500	.160	3.500	.190	1.14	77.4
7 X 2.17	26.08	7.05	42.31	2.50	1.52	6.00	1.77	7.000	.160	3.500	.190	1.22	76.4
5 X 2.13	22.90	6.39	35.50	2.28	1.55	5.08	1.82	6.000	.160	4.000	.220	1.00	91.6
7 X 2.22	25.14	7.72	42.07	2.47	1.57	5.45	1.90	6.500	.160	4.000	.220	1.14	90.4
7 X 2.32	27.39	8.46	49.28	2.66	1.60	5.83	1.98	7.000	.160	4.000	.220	1.22	89.3

8.0 IN. EFFECTIVE WIDTH
.750 IN. PLATE (AREA= 6.00 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	J	TF		
2 X .50	2.07	.55	.98	.39	.47	1.78	.43	1.500	.125	2.000	.125
2 X .58	3.30	.75	1.09	.51	.51	2.24	.49	2.000	.125	2.000	.125
3 X .55	4.70	.98	2.63	.63	.55	2.70	.55	2.500	.125	2.000	.125
3 X .72	6.41	1.22	3.84	.76	.60	3.15	.62	3.000	.125	2.000	.125
3 X .72	5.30	1.15	3.06	.68	.58	2.67	.62	2.500	.125	2.500	.125
3 X .80	7.06	1.42	4.43	.81	.53	3.12	.68	3.000	.125	2.500	.125
4 X .57	6.96	1.71	6.11	.92	.68	3.57	.74	3.500	.125	2.500	.125
4 X .94	10.99	2.02	8.11	1.09	.74	4.01	.80	4.000	.125	2.500	.125
5 X 1.32	13.11	2.35	10.47	1.23	.80	4.45	.87	4.500	.125	2.500	.125
5 X 1.39	15.31	2.70	13.20	1.36	.80	4.89	.93	5.000	.125	2.500	.125
4 X 1.13	12.70	2.69	10.53	1.23	.83	5.92	.97	4.000	.125	3.000	.160
5 X 1.16	17.56	3.07	16.33	1.53	.93	5.32	.99	5.500	.125	2.500	.125
5 X 1.21	14.98	3.10	13.47	1.36	.90	4.35	1.03	4.500	.125	3.000	.160
5 X 1.28	17.31	3.52	16.84	1.54	.97	4.78	1.09	5.000	.125	3.000	.160
5 X 1.35	19.70	3.97	20.65	1.70	1.05	5.20	1.15	5.500	.125	3.000	.160
4 X 1.50	15.35	4.26	15.83	1.47	1.03	5.72	1.36	4.000	.125	4.000	.220
5 X 1.57	22.36	4.83	26.80	1.90	1.20	5.55	1.42	4.500	.125	4.000	.220
5 X 1.74	20.72	5.47	24.62	1.82	1.22	4.23	1.48	5.000	.125	4.000	.220
7 X 1.77	24.83	5.37	32.03	2.07	1.29	5.96	1.51	6.500	.125	4.000	.220
5 X 1.82	22.99	6.11	30.16	2.00	1.31	4.94	1.55	5.500	.160	3.000	.160
7 X 1.86	27.31	5.95	37.84	2.23	1.39	6.36	1.59	7.000	.160	3.000	.160
5 X 1.98	24.10	6.53	31.97	2.05	1.33	5.42	1.61	6.000	.160	3.500	.190
7 X 1.98	26.04	7.18	38.01	2.22	1.43	5.82	1.69	6.500	.160	3.500	.190
7 X 2.07	29.19	7.13	44.07	2.40	1.53	5.22	1.77	7.000	.160	3.500	.190
5 X 2.13	25.64	7.13	37.65	2.19	1.47	5.28	1.82	6.000	.160	4.000	.220
7 X 2.22	28.25	7.86	44.56	2.38	1.56	5.67	1.90	6.500	.160	4.000	.220
7 X 2.32	30.66	8.61	52.20	2.50	1.69	6.00	1.98	7.000	.160	4.000	.220

8.0 IN. EFFECTIVE WIDTH

.875 IN. PLATE (AREA= 7.00 SQ. IN.)

NO.	J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
								AREA	Q	Tw	Wf	TF
2	X	.50	2.02	1.06	.38	.53	1.85	.43	1.200	.125	2.000	.125
2	X	.50	3.23	1.01	.49	.56	2.32	.49	2.000	.125	2.000	.125
3	X	.55	4.09	2.30	.61	.60	2.78	.55	2.500	.125	2.000	.125
3	X	.72	6.37	4.06	.73	.64	3.24	.62	3.000	.125	2.000	.125
3	X	.72	5.26	3.26	.65	.62	2.76	.62	2.500	.125	2.000	.125
3	X	.80	7.06	4.68	.78	.66	3.21	.68	3.000	.125	2.500	.125
4	X	.87	9.35	6.42	.91	.71	3.67	.74	3.500	.125	2.500	.125
4	X	.94	11.19	8.31	1.04	.76	4.11	.80	4.000	.125	2.500	.125
5	X	1.02	13.46	10.95	1.18	.81	4.56	.87	4.500	.125	2.500	.125
5	X	1.09	15.63	13.79	1.32	.87	5.00	.93	5.000	.125	2.500	.125
4	X	1.13	13.14	11.07	1.16	.84	4.03	.97	4.000	.125	3.000	.160
5	X	1.16	18.30	17.03	1.46	.93	5.44	.99	5.500	.125	2.500	.125
5	X	1.21	15.01	14.12	1.33	.90	4.47	1.03	4.500	.125	3.000	.160
5	X	1.28	18.17	17.01	1.48	.97	4.91	1.09	5.000	.125	3.000	.160
5	X	1.35	20.80	21.57	1.63	1.04	5.34	1.15	5.500	.125	3.000	.160
4	X	1.00	16.31	16.72	1.41	1.03	3.85	1.36	4.000	.125	4.000	.220
5	X	1.67	19.09	21.12	1.58	1.11	4.27	1.42	4.500	.125	4.000	.220
5	X	1.67	23.90	28.04	1.82	1.17	5.70	1.43	6.000	.160	3.000	.160
5	X	1.74	21.93	26.09	1.75	1.19	4.69	1.48	5.000	.125	4.000	.220
7	X	1.77	26.00	33.46	1.96	1.26	6.12	1.51	6.500	.160	3.000	.160
5	X	1.82	24.82	31.07	1.92	1.28	5.10	1.55	5.500	.125	4.000	.220
7	X	1.86	29.40	39.52	2.15	1.34	6.53	1.59	7.000	.160	3.000	.160
6	X	1.85	25.98	33.51	1.97	1.29	5.59	1.61	6.000	.160	3.500	.190
7	X	1.98	28.84	39.31	2.14	1.38	5.49	1.69	6.500	.160	3.500	.190
7	X	2.17	31.73	46.75	2.31	1.47	6.40	1.77	7.000	.160	4.000	.220
5	X	2.13	27.87	39.56	2.12	1.42	5.46	1.82	6.000	.160	4.000	.220
7	X	2.22	30.83	46.80	2.29	1.52	5.86	1.90	6.500	.160	4.000	.220
7	X	2.32	33.61	54.70	2.47	1.62	6.26	1.98	7.000	.160	4.000	.220

8.0 IN. EFFECTIVE WIDTH
1.000 IN. PLATE (AREA= 8.00 SQ. IN.)

NUM.		BEAM DIMENSIONS										SHEAR		MAX. SPAN
J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	TM	WF	TF	AREA		
2 X .50	1.96	.00	1.15	.37	.58	1.92	.45	1.500	.125	2.000	.125	.31	53.2	
2 X .58	3.16	.61	1.93	.48	.61	2.39	.49	2.000	.125	2.000	.125	.36	49.3	
3 X .55	4.00	1.04	2.96	.59	.84	2.86	.52	2.500	.125	2.000	.125	.44	47.3	
3 X .72	8.27	1.29	4.27	.70	.88	3.32	.52	3.000	.125	2.000	.125	.50	45.8	
3 X .72	5.19	1.22	3.45	.83	.86	2.84	.62	2.500	.125	2.500	.125	.44	61.7	
3 X .80	7.00	1.50	4.93	.75	.70	3.30	.58	3.000	.125	2.500	.125	.50	59.5	
4 X .87	9.02	1.79	6.73	.88	.75	3.75	.74	3.500	.125	2.500	.125	.56	57.9	
4 X .94	11.22	2.11	8.69	1.00	.79	4.21	.80	4.000	.125	2.500	.125	.63	56.0	
5 X 1.02	13.59	2.45	11.42	1.13	.84	4.66	.87	4.500	.125	2.500	.125	.69	55.6	
5 X 1.09	16.09	2.51	14.34	1.27	.89	5.11	.93	5.000	.125	2.500	.125	.75	54.6	
4 X 1.13	13.56	2.80	11.58	1.14	.87	4.13	.97	4.000	.125	3.000	.100	.63	70.1	
5 X 1.16	18.71	3.18	17.60	1.40	.94	5.56	.99	5.500	.125	2.500	.125	.81	53.7	
5 X 1.21	15.97	3.22	14.73	1.23	.92	4.58	1.03	4.500	.125	3.000	.160	.69	68.7	
5 X 1.28	18.70	3.65	18.34	1.42	.98	5.52	1.09	5.000	.125	3.000	.160	.75	67.5	
6 X 1.35	21.53	4.11	22.43	1.57	1.04	5.46	1.15	5.500	.125	3.000	.160	.81	66.5	
7 X 1.50	18.90	4.73	17.20	1.37	1.03	3.97	1.30	4.000	.125	4.000	.220	.63	98.7	
5 X 1.67	19.98	5.03	22.12	1.53	1.11	4.39	1.42	4.500	.125	4.000	.220	.69	96.4	
5 X 1.67	25.01	5.00	29.18	1.70	1.17	5.83	1.43	6.000	.150	3.000	.160	1.12	65.5	
5 X 1.74	23.00	5.56	27.28	1.70	1.16	4.82	1.48	5.000	.125	4.000	.220	.75	94.5	
7 X 1.77	20.04	5.56	34.82	1.91	1.24	5.26	1.51	5.500	.150	3.000	.160	1.20	64.6	
5 X 1.82	26.22	6.31	33.05	1.86	1.26	5.24	1.55	5.500	.125	4.000	.220	.81	93.0	
7 X 1.80	31.11	6.17	41.07	2.07	1.32	6.08	1.59	7.000	.160	3.000	.160	1.28	63.8	
5 X 1.80	27.42	6.10	34.93	1.91	1.27	5.73	1.51	6.000	.160	3.500	.190	1.12	78.4	
7 X 1.90	30.57	6.75	41.45	2.07	1.36	6.14	1.69	6.500	.160	3.500	.190	1.20	77.4	
7 X 2.07	33.76	7.42	48.65	2.23	1.44	6.56	1.77	7.000	.160	3.500	.190	1.28	76.4	
5 X 2.13	29.65	7.37	41.31	2.05	1.39	5.81	1.82	6.000	.160	4.000	.220	1.12	91.6	
7 X 2.22	32.92	8.12	48.83	2.22	1.48	6.02	1.90	6.500	.160	4.000	.220	1.20	90.4	
7 X 2.32	36.22	8.69	57.09	2.39	1.58	6.42	1.96	7.000	.160	4.000	.220	1.28	89.3	

TABLE 3

EFFECTIVE PLATING WIDTH = 10"

5/16" - 1" PLATE THICKNESSES

MAX FLANGE WIDTH = 6"

10.0 IN. EFFECTIVE WIDTH
 .313 IN. PLATE (AREA= 3.13 SQ. IN.)

YUM. D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	IF		
2 X .50	2.27	.47	.70	.44	.31	1.50	.43	1.500	.125	2.000	.125
2 X .58	3.43	.66	1.28	.59	.37	1.94	.49	2.000	.125	2.000	.125
3 X .65	4.60	.87	2.06	.75	.44	2.37	.55	2.500	.125	2.000	.125
3 X .72	5.94	1.10	3.07	.91	.52	2.80	.62	3.000	.125	2.000	.125
3 X .80	7.47	1.42	4.39	.80	.58	3.23	.72	3.500	.125	2.500	.125
3 X .86	9.28	1.83	6.03	.96	.66	3.66	.83	4.000	.125	2.500	.125
4 X .94	11.42	2.35	8.09	1.13	.74	4.09	.94	4.500	.125	2.500	.125
5 X 1.02	13.98	3.00	10.93	1.47	.84	4.52	.97	5.000	.125	2.500	.125
5 X 1.09	16.97	3.85	14.57	1.64	.94	4.95	.93	5.500	.125	2.500	.125
5 X 1.13	19.41	4.87	18.07	1.44	.88	5.38	.97	6.000	.125	3.000	.125
5 X 1.21	22.30	6.07	22.37	1.62	.99	5.81	1.03	6.500	.125	3.000	.125
5 X 1.28	25.65	7.50	27.14	1.81	1.11	6.24	1.09	7.000	.125	3.000	.125
5 X 1.35	29.47	9.28	32.43	1.99	1.22	6.67	1.15	7.500	.125	3.000	.125
5 X 1.40	33.78	11.42	38.26	1.60	1.17	7.10	1.36	8.000	.125	3.000	.125
4 X 1.60	40.00	15.00	48.00	1.80	1.31	7.53	1.42	8.500	.125	3.000	.125
5 X 1.67	45.00	18.00	57.00	2.19	1.43	7.96	1.43	9.000	.125	3.000	.125
5 X 1.74	50.00	21.00	66.00	2.07	1.45	8.39	1.49	9.500	.125	3.000	.125
7 X 1.77	55.00	24.00	75.00	2.36	1.57	8.82	1.51	10.000	.125	3.000	.125
5 X 1.82	60.00	27.00	84.00	2.27	1.50	9.25	1.55	10.500	.125	3.000	.125
7 X 1.86	65.00	30.00	93.00	2.56	1.71	9.68	1.59	11.000	.125	3.000	.125
5 X 1.97	70.00	33.00	102.00	2.33	1.61	10.11	1.61	11.500	.125	3.000	.125
5 X 1.67	75.00	36.00	111.00	2.53	1.76	10.54	1.59	12.000	.125	3.000	.125
7 X 1.94	80.00	39.00	120.00	2.72	1.91	10.97	1.77	12.500	.125	3.000	.125
7 X 2.07	85.00	42.00	129.00	2.46	1.81	11.40	1.82	13.000	.125	3.000	.125
7 X 2.13	90.00	45.00	138.00	2.60	1.97	11.83	1.90	13.500	.125	3.000	.125
7 X 2.22	95.00	48.00	147.00	2.80	2.13	12.26	1.98	14.000	.125	3.000	.125
5 X 2.32	100.00	51.00	156.00	2.62	2.11	12.69	2.18	14.500	.125	3.000	.125
5 X 2.50	105.00	54.00	165.00	2.82	2.29	13.12	2.20	15.000	.125	3.000	.125
7 X 2.65	110.00	57.00	174.00	3.03	2.47	13.55	2.34	15.500	.125	3.000	.125
7 X 2.75	115.00	60.00	183.00	3.21	2.70	13.98	2.64	16.000	.125	3.000	.125
5 X 3.10	120.00	63.00	192.00	3.41	2.89	14.41	2.74	16.500	.125	3.000	.125
5 X 3.21	125.00	66.00	201.00	3.41	2.92	14.84	2.80	17.000	.125	3.000	.125
5 X 3.28	130.00	69.00	210.00	3.70	3.17	15.27	2.88	17.500	.125	3.000	.125
7 X 3.36	135.00	72.00	219.00	3.20	2.94	15.70	2.90	18.000	.125	3.000	.125
7 X 3.47	140.00	75.00	228.00	3.58	3.17	16.13	3.20	18.500	.125	3.000	.125
6 X 3.82	145.00	78.00	237.00	3.59	3.37	16.56	3.35	19.000	.125	3.000	.125
8 X 3.94	150.00	81.00	246.00	3.59	3.38	16.99	3.35	19.500	.125	3.000	.125
9 X 4.34	155.00	84.00	255.00	3.70	3.63	17.42	3.70	20.000	.125	3.000	.125
9 X 4.47	160.00	87.00	264.00	3.90	3.84	17.85	3.81	20.500	.125	3.000	.125
10 X 4.50	165.00	90.00	273.00	4.10	4.06	18.28	3.81	21.000	.125	3.000	.125
9 X 4.76	170.00	93.00	282.00	4.02	4.10	18.71	4.06	21.500	.125	3.000	.125
9 X 4.89	175.00	96.00	291.00	4.22	4.33	19.14	4.28	22.000	.125	3.000	.125
10 X 5.02	180.00	99.00	300.00	4.38	4.59	19.57	4.59	22.500	.125	3.000	.125
10 X 5.50	185.00	102.00	309.00	4.58	5.74	20.00	4.58	23.000	.125	3.000	.125
11 X 5.64	190.00	105.00	318.00	4.78	6.01	20.43	4.93	23.500	.125	3.000	.125
11 X 5.79	195.00	108.00	327.00	4.78	5.04	20.86	4.93	24.000	.125	3.000	.125

10.0 IN. EFFECTIVE WIDTH
.313 IN. PLATE (AREA= 3.13 SQ. IN.)

NUM. D X L5/FT	ZPL			ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			TF	SHEAR AREA	MAX. SPAN
	AREA	U	TM	WF										
10 X 5.92	35.13	28.19	159.45	4.42	4.81	5.50	5.09	5.50	10.000	.250	5.000	.438	2.58	135.0
11 X 6.37	39.05	30.73	177.04	4.62	5.05	5.76	5.29	5.76	10.500	.250	6.000	.438	2.70	134.0
12 X 6.81	42.98	32.90	195.80	4.82	5.29	6.02	5.63	6.02	11.000	.250	6.000	.438	2.83	132.9
13 X 7.26	46.91	35.44	214.22	5.09	5.63	6.27	6.04	6.27	12.000	.313	6.000	.438	3.65	131.0
14 X 7.70	50.84	37.98	232.67	5.28	6.04	6.55	6.26	6.55	12.500	.313	6.000	.438	4.61	130.1
15 X 8.15	54.77	40.52	251.12	5.52	6.26	6.80	6.51	6.80	13.000	.313	6.000	.500	4.61	130.1
16 X 8.60	58.70	43.06	269.57	5.70	6.51	7.05	6.76	7.05	13.500	.313	6.000	.500	4.17	129.2
17 X 9.05	62.63	45.60	288.02	5.88	6.76	7.30	6.91	7.30	14.000	.313	6.000	.500	4.17	128.4

10.0 IN. EFFECTIVE WIDTH
 .375 IN. PLATE (AREA= 3.75 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TM		
2 X .20	2.32	.48	.74	.42	.32	1.55	.43	1.500	.125	2.000	.125
2 X .25	3.58	.67	1.34	.50	.38	2.00	.49	2.000	.125	2.000	.125
3 X .35	4.90	.89	2.16	.71	.44	2.44	.55	2.500	.125	2.000	.125
3 X .72	6.41	1.12	3.21	.80	.50	2.87	.62	3.000	.125	2.000	.125
3 X .72	5.34	1.04	2.51	.70	.47	2.41	.52	2.500	.125	2.500	.125
3 X .80	6.84	1.30	3.70	.91	.54	2.83	.68	3.000	.125	2.500	.125
4 X .87	8.38	1.59	5.16	1.07	.62	3.26	.74	3.500	.125	2.500	.125
4 X .94	9.94	1.88	6.93	1.23	.70	3.68	.80	4.000	.125	2.500	.125
5 X 1.02	11.51	2.20	9.01	1.40	.78	4.09	.87	4.500	.125	2.500	.125
5 X 1.09	13.09	2.54	11.42	1.56	.87	4.50	.93	5.000	.125	2.500	.125
4 X 1.13	10.56	2.51	8.93	1.38	.82	3.55	.97	4.000	.125	3.000	.160
6 X 1.16	14.67	2.89	14.18	1.73	.97	4.91	.99	5.500	.125	2.500	.125
5 X 1.21	12.52	2.91	11.50	1.55	.92	3.96	1.03	4.500	.125	3.000	.160
5 X 1.28	14.10	3.32	14.70	1.73	1.02	4.35	1.09	5.000	.125	3.000	.160
5 X 1.35	15.81	3.75	17.81	1.91	1.13	4.75	1.15	5.500	.125	3.000	.160
4 X 1.50	12.13	3.99	13.14	1.60	1.08	3.29	1.36	4.000	.125	4.000	.220
4 X 1.57	13.66	4.27	16.77	1.80	1.21	3.87	1.42	4.500	.125	4.000	.220
5 X 1.67	17.45	4.55	22.99	2.11	1.32	5.06	1.43	6.000	.160	3.000	.160
5 X 1.74	15.03	5.17	20.89	2.00	1.34	4.04	1.48	5.000	.125	4.000	.220
7 X 1.77	19.10	5.07	27.54	2.29	1.44	5.43	1.51	6.500	.160	3.000	.160
5 X 1.82	17.36	5.79	25.51	2.19	1.47	4.41	1.55	5.500	.125	4.000	.220
7 X 1.86	20.70	5.61	32.58	2.47	1.57	5.81	1.59	7.000	.160	3.000	.160
5 X 1.98	18.34	5.56	27.21	2.25	1.48	4.09	1.61	6.000	.160	3.500	.190
7 X 1.98	20.05	6.17	32.43	2.44	1.62	5.20	1.69	6.500	.160	3.500	.190
7 X 2.07	21.76	6.80	38.19	2.63	1.76	5.62	1.77	7.000	.160	3.500	.190
5 X 2.13	19.13	6.74	31.75	2.39	1.66	4.71	1.82	6.000	.160	4.000	.220
7 X 2.22	22.85	7.44	37.70	2.58	1.81	5.07	1.90	7.000	.160	4.000	.220
7 X 2.32	26.61	8.16	44.24	2.78	1.96	5.42	1.98	8.000	.160	4.000	.220
5 X 2.50	19.99	8.77	38.65	2.56	1.94	4.45	2.18	8.000	.160	5.000	.250
7 X 2.65	21.32	9.04	45.96	2.77	2.11	4.77	2.20	9.000	.160	5.000	.250
7 X 2.75	23.65	10.53	53.73	2.97	2.27	5.10	2.34	10.000	.160	5.000	.250
5 X 3.10	25.22	11.83	63.04	3.16	2.49	5.38	2.64	11.000	.190	5.000	.250
5 X 3.21	27.30	12.81	73.08	3.30	2.67	5.71	2.74	12.000	.190	5.000	.250
5 X 3.26	29.53	12.09	48.78	2.73	2.34	4.03	2.80	13.000	.160	6.000	.313
7 X 3.30	22.73	13.25	57.55	2.95	2.53	4.34	2.88	14.000	.160	6.000	.313
7 X 3.47	24.65	14.43	67.11	3.16	2.72	4.65	2.96	15.000	.160	6.000	.313
5 X 3.62	28.07	15.36	76.02	3.35	2.95	4.93	3.20	16.000	.190	6.000	.313
5 X 3.64	28.52	17.21	90.62	3.50	3.15	5.23	3.35	17.000	.190	6.000	.313
5 X 4.03	30.73	18.92	103.94	3.74	3.38	5.49	3.70	18.000	.220	6.000	.313
5 X 4.47	32.73	20.27	117.36	3.94	3.59	5.79	3.81	19.000	.220	6.000	.313
10 X 4.03	34.74	21.05	131.70	4.14	3.79	6.08	3.92	20.000	.220	6.000	.313
5 X 4.76	31.22	21.50	112.93	3.80	3.62	5.26	4.00	21.000	.220	6.000	.313
5 X 4.99	33.26	23.00	127.49	4.01	3.83	5.54	4.17	22.000	.220	6.000	.313
10 X 5.02	35.32	24.53	142.96	4.22	4.05	5.83	4.28	23.000	.220	6.000	.313
10 X 5.50	37.09	26.53	161.88	4.38	4.30	6.08	4.68	24.000	.250	6.000	.375
11 X 5.64	39.61	28.26	179.73	4.50	4.51	6.36	4.81	25.000	.250	6.000	.375
11 X 5.79	41.95	29.91	198.63	4.78	4.73	6.64	4.93	26.000	.250	6.000	.375

10.0 IN. EFFECTIVE WIDTH
 .375 IN. PLATE (AREA= 3.75 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	K	Y _P	Y _F	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	J	TM		
10 X 5.42	38.20	29.60	173.05	4.44	4.23	5.85	2.05	10.000	.250	2.59	135.0
11 X 6.07	40.37	31.39	192.03	4.84	4.70	6.12	5.17	10.500	.250	2.72	134.0
11 X 6.21	42.55	33.20	212.12	4.84	4.98	6.39	5.30	11.000	.250	2.84	132.9
12 X 7.38	48.37	36.39	264.15	5.13	5.49	6.88	6.29	12.000	.313	3.87	131.0
13 X 7.56	50.42	40.40	200.70	5.32	5.73	7.15	6.45	12.500	.313	4.03	130.1
13 X 7.98	51.37	43.90	303.94	5.37	5.95	6.92	6.80	12.500	.313	4.03	130.1
13 X 8.10	53.49	46.18	331.08	5.50	6.19	7.19	6.95	13.000	.313	4.19	129.2
14 X 8.35	55.93	48.29	355.55	5.73	6.43	7.45	7.11	13.500	.313	4.34	126.4

10.0 IN. EFFECTIVE WIDTH
 .438 IN. PLATE (AREA= 4.33 SQ. IN.)

NUM.	D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	U	BEAM DIMENSIONS	WF	TF	SHEAR AREA	MAX. SPAN
										IN				
2	X .50	2.33	.49	.79	.40	.34	1.00	.43	1.500	.125	2.000	.125	.24	53.2
2	X .50	3.00	.69	1.41	.54	.39	2.05	.49	2.000	.125	2.000	.125	.24	49.3
3	X .05	5.14	.90	2.25	.68	.44	2.50	.55	2.500	.125	2.000	.125	.37	47.3
3	X .72	6.73	1.14	3.34	.82	.50	2.94	.62	3.000	.125	2.000	.125	.43	45.6
3	X .72	5.58	1.16	2.02	.72	.47	2.47	.52	2.500	.125	2.500	.125	.37	61.7
3	X .80	7.24	1.33	3.65	.87	.55	2.91	.66	3.000	.125	2.500	.125	.43	59.5
4	X .87	8.95	1.01	5.37	1.02	.60	3.34	.74	3.500	.125	2.500	.125	.49	57.9
4	X .94	10.71	1.91	7.14	1.18	.67	3.77	.80	4.000	.125	2.500	.125	.55	56.6
5	X 1.02	12.49	2.63	9.35	1.34	.75	4.19	.87	4.500	.125	2.500	.125	.62	55.6
5	X 1.09	14.30	2.57	11.85	1.49	.83	4.61	.93	5.000	.125	2.500	.125	.68	54.6
6	X 1.13	16.11	2.55	14.71	1.66	.91	5.02	.99	5.500	.125	3.000	.125	.74	70.1
6	X 1.21	13.74	2.95	11.90	1.49	.87	4.07	1.03	4.500	.125	3.000	.125	.82	63.7
6	X 1.26	15.03	3.30	15.05	1.60	.96	4.47	1.09	5.000	.125	3.000	.160	.68	67.5
6	X 1.35	17.51	3.80	18.53	1.83	1.06	4.38	1.15	5.500	.125	3.000	.160	.74	60.5
6	X 1.40	13.48	4.04	13.61	1.55	1.02	3.41	1.36	4.000	.125	4.000	.220	.55	98.7
6	X 1.57	15.45	4.63	17.60	1.74	1.14	3.80	1.42	4.500	.125	4.000	.220	.62	96.4
6	X 1.67	19.43	4.61	23.98	2.03	1.23	5.20	1.43	5.000	.160	3.000	.160	1.03	65.5
6	X 1.74	17.48	5.24	21.91	1.93	1.25	4.18	1.48	5.000	.125	4.000	.220	.64	94.5
7	X 1.77	21.32	5.14	28.73	2.21	1.35	5.59	1.51	6.500	.125	3.000	.160	1.11	64.6
6	X 1.82	19.49	5.06	26.74	2.13	1.37	4.57	1.55	5.500	.125	4.000	.220	.74	93.0
7	X 1.86	23.22	5.69	33.99	2.39	1.40	5.97	1.59	7.000	.160	3.000	.160	1.19	63.8
7	X 1.90	20.32	5.04	20.47	2.18	1.39	5.05	1.51	6.000	.160	3.500	.190	1.03	74.4
7	X 1.96	22.47	6.25	35.93	2.37	1.51	5.43	1.59	6.500	.160	3.500	.190	1.11	77.4
7	X 2.07	24.43	6.84	39.90	2.55	1.64	5.00	1.77	7.000	.160	3.500	.220	1.19	70.4
5	X 2.13	21.45	6.83	33.34	2.32	1.55	4.38	1.82	6.000	.160	4.000	.220	1.03	91.6
7	X 2.22	23.46	7.54	39.20	2.51	1.69	5.25	1.90	6.500	.160	4.000	.220	1.11	90.4
7	X 2.32	25.47	8.27	46.44	2.70	1.82	5.61	1.98	7.000	.160	4.000	.220	1.19	89.3
6	X 2.56	22.58	8.38	41.03	2.70	1.82	4.62	2.18	6.000	.160	5.000	.250	1.19	119.0
7	X 2.55	24.00	9.76	48.52	2.90	1.97	4.97	2.26	6.500	.160	5.000	.250	1.11	117.3
7	X 2.75	26.75	10.67	50.71	2.91	2.12	5.32	2.34	7.000	.160	5.000	.250	1.19	115.8
8	X 3.10	28.65	11.39	67.24	3.10	2.33	5.61	2.64	7.500	.190	5.000	.250	1.51	114.5
5	X 3.21	30.90	12.19	77.21	3.29	2.49	5.94	2.74	8.000	.190	5.000	.250	1.51	113.3
5	X 3.26	23.65	12.26	51.97	2.99	2.20	4.24	2.60	6.000	.150	5.000	.313	1.03	149.0
7	X 3.38	25.82	13.43	61.28	2.91	2.37	4.50	2.68	6.500	.160	5.000	.313	1.11	145.6
7	X 3.47	28.00	14.01	71.42	3.12	2.55	4.89	2.96	7.000	.190	5.000	.313	1.19	143.5
3	X 3.82	30.25	16.10	83.60	3.31	2.77	5.17	3.26	7.500	.190	5.000	.313	1.51	141.8
8	X 3.94	32.40	17.46	95.79	3.52	2.95	5.49	3.35	8.000	.190	5.000	.313	1.51	140.2
9	X 4.34	34.79	19.21	110.63	3.70	3.18	5.70	3.70	8.500	.220	5.000	.313	1.97	134.7
9	X 4.47	37.04	21.39	124.89	3.91	3.37	6.07	3.81	9.000	.220	5.000	.313	2.08	137.4
10	X 4.76	39.31	21.83	120.67	3.78	3.41	5.53	4.06	8.500	.220	6.000	.375	1.97	136.7
9	X 4.89	40.00	23.37	130.12	3.99	3.51	5.83	4.17	9.000	.220	5.000	.375	2.19	136.2
10	X 5.02	46.00	24.92	152.59	4.20	3.61	6.12	4.28	9.500	.220	5.000	.375	2.19	136.2
10	X 5.50	42.57	27.08	172.75	4.37	4.06	6.38	4.68	10.000	.250	6.000	.375	2.61	135.0
11	X 5.64	44.94	26.74	191.74	4.57	4.27	6.67	4.81	10.500	.250	6.000	.375	2.73	134.0
11	X 5.79	47.33	30.43	211.84	4.77	4.48	6.96	4.93	11.000	.250	6.000	.375	2.86	132.9

10.0 IN. EFFECTIVE WIDTH

.438 IN. PLATE (AREA= 4.33 SQ. IN.)

NOM.

3 X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	U	BEAM DIMENSIONS	WF	TF	SHEAR AREA	MAX. SPAN
									U	U	TF		
11 X 5.32	43.17	30.11	185.16	4.43	4.29	6.15	5.05	10.000	.250	5.000	.438	2.61	135.0
11 X 5.37	45.54	31.93	215.40	4.64	4.31	6.43	5.17	10.500	.250	5.000	.438	2.73	134.0
11 X 6.21	48.03	33.77	226.80	4.84	4.72	6.72	5.30	11.000	.250	5.000	.438	2.86	132.9
12 X 7.38	53.91	39.14	282.07	5.14	5.23	7.21	6.29	12.000	.313	6.000	.438	3.69	131.6
13 X 7.36	56.50	41.20	308.26	5.34	5.46	7.48	6.45	12.500	.313	6.000	.438	4.05	130.1
13 X 7.98	57.25	44.77	325.03	5.39	5.08	7.20	6.80	12.500	.313	5.000	.500	4.05	130.1
13 X 8.16	59.40	47.00	353.90	5.59	5.91	7.53	6.95	13.000	.313	6.000	.500	4.21	129.2
14 X 8.35	62.59	49.26	384.18	5.78	6.14	7.80	7.11	13.500	.313	6.000	.500	4.36	128.4

10.0 IN. EFFECTIVE WIDTH
 .500 IN. PLATE (AREA= 5.00 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	W ²		
2 X .50	2.31	.50	.83	.39	.36	1.64	.43	1.500	.125	2.000	.125
2 X .58	3.37	.70	1.47	.52	.40	2.10	.49	2.000	.125	2.000	.125
3 X .95	5.22	.92	2.34	.65	.45	2.55	.55	2.500	.125	2.000	.125
3 X .72	6.92	1.15	3.46	.76	.50	3.00	.62	3.000	.125	2.500	.125
3 X .72	5.73	1.04	2.72	.70	.48	2.52	.52	2.500	.125	2.500	.125
3 X .80	7.50	1.35	3.99	.84	.53	2.97	.58	3.000	.125	2.500	.125
4 X .87	9.36	1.63	5.56	.93	.59	3.41	.74	3.500	.125	2.500	.125
5 X .94	11.29	1.94	7.44	1.13	.66	3.84	.80	4.000	.125	2.500	.125
5 X 1.02	13.27	2.26	9.05	1.28	.73	4.27	.87	4.500	.125	2.500	.125
5 X 1.09	15.27	2.60	12.22	1.44	.80	4.70	.93	5.000	.125	2.500	.125
4 X 1.13	12.68	2.58	9.04	1.27	.76	3.74	.97	4.000	.125	3.000	.160
5 X 1.16	17.30	2.90	15.17	1.59	.88	5.12	.99	5.000	.125	2.500	.125
5 X 1.21	14.70	2.90	12.40	1.43	.84	4.16	1.03	4.500	.125	3.000	.160
5 X 1.28	16.86	3.40	19.57	1.80	.92	4.58	1.09	5.000	.125	3.000	.160
5 X 1.35	18.97	3.84	19.10	1.70	1.01	4.99	1.15	5.500	.125	3.000	.160
4 X 1.60	14.05	4.09	14.40	1.50	.90	3.52	1.36	4.000	.125	4.000	.220
5 X 1.67	18.69	4.08	28.34	1.89	1.09	5.91	1.42	4.500	.125	4.000	.220
5 X 1.67	21.17	4.36	24.89	1.97	1.17	5.33	1.43	5.000	.160	3.000	.160
5 X 1.74	19.14	5.29	22.01	1.88	1.19	4.31	1.48	5.000	.125	4.000	.220
7 X 2.77	23.31	5.20	29.77	2.14	1.28	5.72	1.51	6.500	.125	3.000	.160
5 X 1.86	21.39	5.92	27.82	2.00	1.30	4.70	1.55	5.500	.125	4.000	.220
5 X 1.86	25.44	5.70	35.22	2.31	1.36	6.12	1.59	7.000	.160	3.000	.160
5 X 1.98	24.43	5.70	29.50	2.12	1.32	5.18	1.51	6.000	.160	3.500	.190
7 X 1.98	24.08	6.33	35.24	2.30	1.43	5.57	1.69	6.000	.160	3.500	.190
5 X 2.17	26.88	5.97	41.50	2.48	1.54	5.96	1.77	7.000	.160	3.500	.190
5 X 2.13	23.01	6.91	34.73	2.26	1.47	5.03	1.82	6.000	.160	4.000	.220
7 X 2.22	25.87	7.62	41.22	2.44	1.59	5.41	1.90	6.500	.160	4.000	.220
7 X 2.32	28.13	8.37	48.30	2.63	1.72	5.78	1.98	7.000	.160	4.000	.220
7 X 2.56	24.99	8.98	42.95	2.45	1.72	4.78	2.18	6.000	.160	4.000	.220
5 X 2.05	27.33	9.87	50.77	2.64	1.86	5.14	2.26	6.500	.160	5.000	.250
7 X 2.75	29.07	10.76	59.32	2.84	2.00	5.50	2.34	7.000	.160	5.000	.250
8 X 3.10	32.01	12.14	70.41	3.04	2.20	5.80	2.64	7.500	.130	5.000	.250
8 X 3.21	34.37	13.15	80.63	3.23	2.35	6.15	2.74	8.000	.130	5.000	.250
5 X 3.28	28.33	12.40	54.79	2.65	2.35	4.42	2.80	6.000	.160	6.000	.313
7 X 3.38	28.77	13.28	64.37	2.80	2.24	4.76	2.88	6.500	.160	6.000	.313
7 X 3.82	33.70	16.38	88.17	3.27	2.41	5.09	3.26	7.500	.130	6.000	.313
8 X 3.94	30.17	17.37	100.09	3.48	2.79	5.71	3.35	8.000	.130	6.000	.313
8 X 4.34	36.72	19.40	116.57	3.80	3.01	5.99	3.70	8.500	.220	6.000	.313
9 X 4.47	41.22	20.86	131.57	3.86	3.19	6.31	3.81	9.000	.220	6.000	.313
10 X 7.50	43.74	22.68	147.59	4.07	3.37	6.53	3.92	9.500	.220	6.000	.313
9 X 7.76	39.43	22.12	127.53	3.75	3.23	5.77	4.30	8.500	.220	6.000	.375
9 X 4.89	41.98	23.67	143.81	3.96	3.43	6.07	4.17	9.000	.220	6.000	.375
10 X 5.12	44.25	25.25	161.17	4.17	3.62	6.38	4.28	9.500	.220	6.000	.375
10 X 5.50	47.32	27.47	182.49	4.44	3.86	6.84	4.58	10.000	.250	6.000	.375
12 X 5.54	49.95	29.16	202.51	4.54	4.05	6.95	4.81	10.500	.250	6.000	.375
11 X 5.79	52.58	30.87	223.70	4.75	4.25	7.25	4.93	11.000	.250	6.000	.375

10.0 IN. EFFECTIVE WIDTH

500 IN. PLATE (AREA= 500 SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	-----			-----		SHEAR AREA	MAX. SPAN
							AREA	U	W	TF	WF		
10 X 5.92	48.03	30.55	196.06	4.42	4.08	6.42	5.05	10.000	.450	5.000	.438	2.63	135.0
11 X 6.07	50.71	32.39	217.43	4.62	4.29	6.71	5.17	10.500	.250	5.000	.438	2.75	134.0
11 X 6.21	53.39	34.27	240.03	4.83	4.50	7.00	5.30	11.000	.250	6.000	.438	2.88	132.9
12 X 7.36	59.00	39.79	290.38	5.14	5.00	7.50	6.29	12.000	.313	5.000	.438	3.91	131.0
13 X 7.56	62.49	41.89	326.01	5.34	5.22	7.78	6.42	12.500	.313	5.000	.438	4.07	130.1
13 X 7.98	65.33	45.52	344.28	5.40	5.44	7.96	6.80	12.500	.313	5.000	.500	4.07	130.1
13 X 8.10	66.23	47.79	374.70	5.60	5.00	7.84	5.95	13.000	.313	5.000	.500	4.23	129.2
14 X 8.35	69.15	50.10	406.70	5.79	5.68	8.12	7.11	13.500	.313	6.000	.500	4.38	128.4

10.0 IN. EFFECTIVE WIDTH
 .625 IN. PLATE (AREA= 6.25 SQ. IN.)

NO.	D	X	LB/FT	ZPL	ZFL	INERTIA	K	YF	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
										AREA	D	TH	WF	TF
2	X	.50	2.29	.53	.91	.37	.40	1.72	.43	1.500	.125	.125	2.000	.125
2	X	.58	3.02	.73	1.59	.49	.44	2.19	.49	2.000	.125	.125	2.000	.125
3	X	.05	5.02	.95	2.51	.61	.48	2.05	.55	2.500	.125	.125	2.000	.125
3	X	.72	7.02	1.19	3.09	.73	.52	3.10	.62	3.000	.125	.125	2.000	.125
3	X	.72	5.31	1.11	2.92	.65	.50	2.02	.52	2.500	.125	.125	2.000	.125
3	X	.80	7.74	1.38	4.20	.78	.55	3.07	.68	3.000	.125	.125	2.500	.125
4	X	.87	9.02	1.57	5.90	.92	.55	3.52	.74	3.500	.125	.125	2.500	.125
4	X	.94	12.01	1.98	7.87	1.06	.60	5.97	.80	4.000	.125	.125	2.500	.125
5	X	1.32	14.29	2.31	10.20	1.20	.71	4.41	.87	4.500	.125	.125	2.500	.125
5	X	1.09	18.07	2.56	12.89	1.34	.77	4.55	.93	5.000	.125	.125	2.500	.125
4	X	1.13	13.79	2.64	13.25	1.19	.74	3.88	.97	4.000	.125	.125	3.000	.100
5	X	1.16	19.04	3.02	15.99	1.49	.81	5.29	.99	5.500	.125	.125	2.500	.125
5	X	1.21	18.23	3.05	15.14	1.34	.81	4.31	1.03	4.500	.125	.125	3.000	.100
5	X	1.28	18.72	3.77	18.48	1.50	.88	4.74	1.09	5.000	.125	.125	3.000	.100
5	X	1.35	21.24	3.92	20.26	1.65	.95	5.17	1.15	5.500	.125	.125	3.000	.100
7	X	1.30	19.17	4.19	19.44	1.42	.94	3.89	1.36	4.000	.125	.125	4.000	.220
7	X	1.07	24.02	4.77	28.35	1.65	1.10	5.53	1.43	6.000	.100	.100	3.000	.100
5	X	1.07	21.97	4.77	28.35	1.77	1.10	5.53	1.43	6.000	.100	.100	3.000	.100
7	X	1.77	20.60	5.31	31.55	2.02	1.19	5.94	1.51	6.500	.100	.100	4.000	.100
5	X	1.52	24.59	6.03	45.67	1.95	1.21	4.92	1.52	5.500	.100	.100	4.000	.100
7	X	1.30	23.20	5.18	37.54	2.13	1.28	6.35	1.59	7.000	.160	.160	3.000	.100
5	X	1.38	25.70	5.82	31.47	2.00	1.22	5.50	1.51	6.000	.160	.160	3.500	.190
7	X	1.30	37.49	6.46	37.49	2.17	1.32	5.81	1.59	6.500	.160	.160	3.500	.190
7	X	2.37	31.11	7.11	44.13	2.35	1.42	6.21	1.77	7.000	.160	.160	3.500	.190
5	X	2.13	27.33	7.55	37.11	2.15	1.36	5.27	1.82	6.000	.160	.160	4.000	.220
7	X	2.22	30.37	7.78	44.03	2.32	1.40	5.06	1.80	6.500	.160	.160	4.000	.220
7	X	2.32	32.82	8.53	51.63	2.51	1.57	6.05	1.98	7.000	.160	.160	4.000	.220
5	X	2.50	29.27	9.16	46.23	2.34	1.58	5.35	2.19	6.000	.160	.160	5.000	.250
7	X	2.05	32.11	10.07	54.60	2.53	1.70	5.42	2.26	6.500	.160	.160	5.000	.250
7	X	2.75	34.90	10.39	63.76	2.72	1.82	5.90	2.34	7.000	.160	.160	5.000	.250
8	X	3.10	37.79	12.39	75.80	2.92	2.01	6.12	2.64	7.500	.190	.190	5.000	.250
8	X	3.21	40.05	13.42	87.01	3.11	2.14	6.43	2.74	8.000	.190	.190	5.000	.250
5	X	3.28	31.23	12.65	59.84	2.57	1.91	4.72	2.80	6.000	.190	.190	5.000	.313
7	X	3.38	34.20	13.84	70.21	2.77	2.15	5.07	2.88	6.500	.190	.190	5.000	.313
7	X	3.47	37.17	15.06	81.73	2.98	2.20	5.43	2.96	7.000	.190	.190	5.000	.313
5	X	3.32	33.13	16.71	95.86	3.18	2.39	5.74	3.26	7.500	.190	.190	5.000	.313
8	X	3.94	43.12	18.03	109.04	3.38	2.54	6.08	3.35	8.000	.220	.220	5.000	.313
9	X	4.34	40.13	19.89	126.60	3.57	2.75	6.36	3.70	8.500	.220	.220	5.000	.313
9	X	4.47	43.14	21.31	143.07	3.77	2.91	6.71	3.81	9.000	.220	.220	5.000	.313
10	X	4.50	47.10	22.70	160.44	3.97	3.08	7.05	3.92	9.500	.220	.220	5.000	.313
9	X	4.76	47.10	22.80	153.37	3.68	2.96	6.17	4.06	8.500	.220	.220	5.000	.375
9	X	4.89	50.17	24.19	157.09	3.59	3.13	6.49	4.17	9.000	.220	.220	5.000	.375
10	X	5.02	53.25	25.60	175.99	4.09	3.30	6.82	4.28	9.500	.250	.250	5.000	.375
10	X	5.50	50.45	28.11	195.39	4.27	3.53	7.09	4.58	10.000	.250	.250	5.000	.375
11	X	5.64	59.57	29.84	221.20	4.47	3.71	7.41	4.81	10.500	.250	.250	5.000	.375
11	X	5.79	62.71	31.60	244.29	4.67	3.90	7.73	4.93	11.000	.250	.250	9.000	.375

10.3 IN. EFFECTIVE WIDTH

.625 IN. PLATE (AREA= 0.25 SQ. IN.)

NOM. U X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX SPAN	
							AREA	U	TW			
10 X 5.92	57.39	31.27	215.05	4.30	3.75	6.38	5.05	10.000	.250	5.000	.438	135.0
11 X 6.47	60.57	33.16	256.40	4.57	3.94	7.19	5.17	10.500	.250	5.000	.438	134.3
11 X 6.21	63.77	35.68	263.09	4.77	4.13	7.50	5.30	11.000	.250	6.000	.438	132.9
12 X 7.38	70.81	40.87	327.14	5.11	4.52	8.00	5.29	12.000	.313	6.000	.438	131.0
13 X 7.56	74.12	43.03	357.31	5.31	4.82	8.30	5.45	12.500	.313	5.000	.438	130.1
13 X 7.78	75.17	46.76	378.35	5.38	5.03	8.59	6.80	12.500	.313	6.000	.500	130.1
13 X 8.16	78.50	49.10	411.09	5.58	5.24	8.38	6.95	13.000	.313	5.000	.500	129.2
14 X 8.35	81.97	51.48	446.62	5.78	5.45	8.88	7.11	13.500	.313	5.000	.500	128.4

10.0 IN. EFFECTIVE WIDTH

.750 IN. PLATE (AREA= 7.50 SQ. IN.)

NUM.	D X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
								AREA	D	TH		
2	X .50	2.18	.35	.99	.35	.46	1.79	.43	1.500	.125	2.000	.125
2	X .50	3.52	.70	1.71	.40	.49	2.00	.49	2.000	.125	2.000	.125
3	X .55	5.14	.98	2.67	.50	.52	2.73	.55	2.500	.125	2.000	.125
3	X .72	7.00	2.22	3.96	.69	.56	3.19	.62	3.000	.125	2.500	.125
3	X .72	5.76	1.15	3.11	.62	.54	2.71	.62	2.500	.125	2.500	.125
3	X .80	7.76	1.42	4.51	.74	.68	3.17	.68	3.000	.125	2.500	.125
4	X .87	9.95	1.72	6.22	.87	.83	3.62	.74	3.500	.125	2.500	.125
4	X .94	12.30	2.03	8.27	1.00	.87	4.08	.80	4.000	.125	2.500	.125
5	X 1.02	14.80	2.30	10.69	1.13	.72	4.23	.87	4.500	.125	2.500	.125
5	X 1.04	17.40	2.71	13.49	1.27	.78	4.97	.93	5.000	.125	2.500	.125
4	X 1.13	14.41	2.70	10.79	1.13	.75	4.00	.97	4.000	.125	3.000	.160
5	X 1.16	20.09	3.06	10.71	1.40	.83	5.22	.99	5.500	.125	2.500	.125
5	X 1.21	17.11	3.11	13.61	1.27	.81	4.44	1.03	4.500	.125	3.000	.160
5	X 1.28	19.91	3.54	17.28	1.42	.87	5.32	1.09	5.000	.125	3.000	.160
5	X 1.35	22.77	3.99	21.21	1.57	.93	5.82	1.15	5.500	.125	3.000	.160
5	X 1.60	17.79	4.27	10.37	1.36	.92	3.83	1.30	4.000	.125	4.000	.220
5	X 1.67	20.82	4.88	20.74	1.52	1.00	4.25	1.42	4.500	.125	4.000	.220
5	X 1.97	20.10	4.06	27.05	1.70	1.06	5.59	1.43	5.000	.160	3.000	.160
5	X 1.74	23.90	5.50	25.70	1.09	1.08	4.67	1.48	5.000	.125	4.000	.220
7	X 1.77	29.08	5.41	33.08	1.92	1.14	6.11	1.51	6.500	.160	3.000	.160
5	X 1.82	27.04	6.14	31.26	1.60	1.16	5.09	1.55	5.500	.125	4.000	.220
7	X 1.95	32.10	5.59	39.12	2.07	1.22	6.53	1.59	7.000	.160	3.000	.160
6	X 1.98	28.31	5.93	33.10	1.91	1.17	5.58	1.61	6.000	.160	3.500	.190
7	X 1.98	31.39	6.57	39.40	2.07	1.25	6.00	1.69	6.500	.160	3.500	.190
7	X 2.07	34.51	7.23	40.35	2.24	1.34	6.41	1.77	7.000	.160	3.500	.190
9	X 2.13	30.30	7.17	39.15	2.05	1.29	5.46	1.82	6.000	.160	4.000	.220
7	X 2.22	33.49	7.91	46.40	2.22	1.39	5.86	1.90	6.500	.160	4.000	.220
7	X 2.32	30.63	6.58	54.38	2.40	1.48	6.27	1.98	7.000	.160	4.000	.220
5	X 2.50	32.85	9.32	49.11	2.25	1.49	5.26	2.18	6.000	.160	5.000	.250
7	X 2.65	30.17	10.24	57.84	2.43	1.50	5.05	2.26	6.500	.160	5.000	.250
7	X 2.75	39.50	11.17	67.50	2.62	1.71	6.34	2.34	7.000	.160	5.000	.250
8	X 3.10	42.84	12.00	80.35	2.81	1.98	6.37	2.34	7.500	.190	5.000	.250
5	X 3.21	46.13	13.05	92.18	3.00	2.00	6.75	2.74	8.000	.190	5.000	.250
5	X 3.28	35.52	12.87	63.76	2.49	1.79	4.96	2.30	6.000	.160	5.000	.313
7	X 3.38	30.39	14.00	74.39	2.69	1.82	5.33	2.36	6.500	.160	5.000	.313
7	X 3.47	42.47	15.31	87.21	2.89	2.05	5.70	2.30	7.000	.160	6.000	.313
5	X 3.62	45.93	17.00	102.35	3.08	2.23	6.02	3.26	7.500	.190	5.000	.313
5	X 3.94	49.42	15.33	117.00	3.28	2.37	6.38	3.35	8.000	.190	5.000	.313
9	X 4.34	52.91	20.24	135.42	3.48	2.56	6.69	3.70	8.500	.220	5.000	.313
9	X 4.47	50.42	21.59	122.75	3.68	2.71	7.04	3.81	9.000	.220	5.000	.313
10	X 4.60	59.39	23.17	171.20	3.87	2.80	7.39	3.82	9.500	.220	5.000	.313
9	X 4.76	54.19	23.01	149.40	3.80	2.70	6.49	4.06	8.500	.220	5.000	.375
9	X 4.89	57.78	24.62	168.33	3.80	2.91	6.84	4.17	9.000	.220	5.000	.375
10	X 5.02	61.37	20.20	180.21	4.00	3.07	7.18	4.28	9.500	.250	5.000	.375
10	X 5.50	68.64	30.04	213.73	4.19	3.29	7.40	4.48	10.000	.250	6.000	.375
11	X 5.84	68.54	30.41	237.06	4.39	3.45	7.80	4.81	10.500	.250	6.000	.375
11	X 5.79	72.27	32.20	261.75	4.59	3.62	8.13	4.93	11.000	.250	6.000	.375

10.0 IN. EFFECTIVE WIDTH

.750 IN. PLATE (AREA= 7.50 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	K	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
						AREA	U	TF		
10 X 5.92	66.22	31.86	231.23	4.29	7.26	5.05	10.000	.438	2.69	132.0
11 X 6.07	69.91	33.79	250.26	4.50	7.58	5.17	10.500	.438	2.61	134.0
12 X 6.21	73.51	35.75	262.72	4.70	7.91	5.30	11.000	.438	2.94	132.9
13 X 6.36	81.47	41.74	351.91	5.09	8.43	6.29	12.000	.438	3.99	131.0
14 X 6.56	85.27	43.95	384.29	5.25	8.74	6.45	12.500	.438	4.15	130.1
15 X 6.76	89.56	47.76	437.82	5.34	8.94	6.80	12.500	.500	4.15	130.1
16 X 6.96	94.44	50.16	443.84	5.54	8.84	6.95	13.000	.500	4.30	129.2
17 X 7.16	94.34	52.59	481.19	5.74	9.15	7.11	13.500	.500	4.46	128.4

10.0 IN. EFFECTIVE WIDTH
 .875 IN. PLATE (AREA= 8.75 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	J	T _M		
2 X .50	2.11	.58	1.08	.34	.51	1.87	.43	1.200	.125	.125	53.2
2 X .50	3.41	.76	1.03	.45	.54	2.34	.49	2.000	.125	.125	49.3
3 X .65	5.00	1.01	2.83	.55	.57	2.81	.55	2.500	.125	.125	47.3
3 X .72	6.80	1.26	4.11	.60	.60	3.28	.62	3.000	.125	.125	45.8
3 X .72	5.05	1.18	3.50	.53	.59	2.79	.62	2.500	.125	.125	61.7
3 X .80	7.05	1.46	4.75	.71	.62	3.25	.68	3.000	.125	.125	59.5
4 X .87	9.30	1.76	6.53	.83	.66	3.72	.74	3.500	.125	.125	57.9
4 X .94	12.34	2.07	8.00	.95	.70	4.17	.80	4.000	.125	.125	56.6
5 X 1.02	14.97	2.41	11.16	1.08	.75	4.63	.87	4.500	.125	.125	55.6
5 X 1.09	17.74	2.77	14.35	1.21	.79	5.08	.93	5.000	.125	.125	54.0
5 X 1.13	14.09	2.75	11.30	1.03	.77	4.11	.97	4.000	.125	.160	70.1
6 X 1.16	20.04	3.14	17.37	1.34	.84	5.53	.99	5.200	.125	.125	53.7
5 X 1.21	17.58	3.17	14.43	1.21	.82	4.55	1.03	4.500	.125	.160	68.7
5 X 1.25	23.00	3.50	18.02	1.35	.87	5.00	1.09	5.000	.125	.160	67.5
5 X 1.35	23.72	4.06	22.09	1.49	.93	5.44	1.15	5.500	.125	.160	60.5
4 X 1.60	18.05	4.36	17.22	1.31	.92	3.95	1.30	4.000	.125	.220	93.7
5 X 1.57	21.90	4.90	21.70	1.40	.99	4.38	1.42	4.500	.125	.220	96.4
5 X 1.57	27.54	4.94	25.82	1.68	1.05	5.83	1.43	5.000	.160	.160	65.5
5 X 1.74	25.36	5.59	26.91	1.62	1.06	4.81	1.48	5.000	.125	.220	94.5
7 X 1.77	30.67	5.50	34.46	1.83	1.12	5.26	1.51	6.500	.160	.160	64.6
5 X 1.82	26.84	6.24	32.69	1.76	1.13	5.24	1.59	5.200	.125	.220	93.0
7 X 1.80	34.26	6.09	40.71	1.96	1.19	6.09	1.59	7.000	.160	.160	63.8
5 X 1.88	30.17	5.33	34.57	1.63	1.15	5.73	1.61	6.000	.160	.190	78.4
7 X 1.98	33.04	6.08	41.10	1.98	1.22	6.15	1.69	8.200	.160	.190	77.4
7 X 2.07	37.14	7.55	48.32	2.14	1.30	6.57	1.77	9.500	.160	.190	70.4
5 X 2.13	32.60	7.29	40.97	1.97	1.26	5.62	1.82	6.000	.160	.220	91.6
7 X 2.22	36.19	8.04	48.51	2.13	1.34	6.03	1.90	8.200	.160	.220	90.4
7 X 2.32	39.52	8.81	56.81	2.30	1.43	6.42	1.96	9.200	.160	.220	89.3
5 X 2.30	35.77	9.47	51.48	2.17	1.44	5.44	2.16	6.000	.160	.250	119.0
7 X 2.35	39.53	10.39	60.70	2.55	1.54	5.84	2.26	8.200	.160	.250	117.3
7 X 2.75	43.31	11.34	70.77	2.53	1.63	6.24	2.34	9.000	.160	.250	115.8
5 X 3.10	47.17	12.00	84.32	2.72	1.79	6.59	2.64	7.200	.190	.250	114.5
5 X 3.21	50.95	13.86	90.70	2.90	1.90	6.98	2.74	8.000	.190	.250	113.3
7 X 3.28	39.22	13.07	67.40	2.42	1.72	5.16	2.80	6.000	.160	.313	148.0
5 X 3.36	43.10	14.29	79.18	2.61	1.83	5.54	2.88	6.500	.160	.313	145.0
7 X 3.47	47.13	15.53	92.00	2.80	1.95	5.92	2.90	7.000	.160	.313	143.5
5 X 3.82	51.08	17.20	108.02	3.00	2.11	6.26	3.20	7.500	.190	.313	141.8
5 X 3.94	55.07	18.60	123.41	3.19	2.24	6.63	3.35	8.000	.190	.313	140.2
5 X 4.34	59.05	20.50	142.95	3.39	2.42	6.95	3.70	8.500	.220	.313	138.7
9 X 4.47	67.07	22.02	161.10	3.56	2.50	7.32	3.91	9.000	.220	.313	137.4
10 X 4.50	60.69	23.52	180.00	3.78	2.69	7.68	3.92	9.500	.220	.313	136.2
5 X 4.89	64.77	25.00	178.12	3.51	2.75	7.12	4.06	8.500	.220	.375	138.7
5 X 5.02	68.86	26.00	199.41	3.91	2.90	7.48	4.17	9.000	.220	.375	137.4
10 X 5.20	72.98	29.10	226.25	4.16	3.10	7.77	4.58	10.000	.250	.375	135.0
11 X 5.64	77.10	30.89	250.80	4.50	3.25	8.12	4.81	10.500	.250	.375	134.0
11 X 5.79	81.23	32.72	276.90	4.50	3.41	8.47	4.93	11.000	.250	.375	132.9

10.0 IN. EFFECTIVE WIDTH
 .875 IN. PLATE (AREA= 8.75 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	BEAM DIMENSIONS D TW	WF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	74.49	32.37	245.38	4.22	3.29	7.58	5.05	10.000	5.000	.438	2.72	135.0
11 X 6.17	76.09	34.33	271.86	4.42	3.46	7.52	5.17	10.500	5.000	.438	2.64	134.0
11 X 6.21	82.89	36.31	299.86	4.62	3.62	8.26	5.30	11.000	6.000	.438	2.97	132.9
12 X 7.36	91.01	42.49	373.71	4.98	4.08	8.80	6.29	12.000	5.000	.438	4.03	131.0
13 X 7.56	95.96	44.74	408.03	5.18	4.25	9.12	6.45	12.500	5.000	.438	4.19	130.1
13 X 7.98	97.45	48.61	433.80	5.28	4.45	8.92	6.80	12.500	6.000	.500	4.19	130.1
13 X 8.16	101.02	51.06	471.83	5.48	4.63	9.24	6.95	13.000	6.000	.500	4.34	129.2
14 X 8.35	106.21	53.54	511.67	5.68	4.82	9.50	7.11	13.500	6.000	.500	4.50	128.4

10.0 IN. EFFECTIVE WIDTH
1.000 IN. PLATE (AREA=10.00 SQ. IN.)

RUN.	U X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
								AREA	D	TF		
2	X .50	2.05	.60	1.16	.33	.57	1.93	.43	1.500	.125	.125	53.2
2	X .50	3.31	.51	1.35	.43	.59	2.41	.49	2.000	.125	.125	49.3
3	X .65	4.66	1.04	3.00	.53	.62	2.88	.55	2.500	.125	.125	47.3
3	X .72	5.61	1.29	4.32	.64	.65	3.35	.62	3.000	.125	.125	45.3
3	X .72	7.50	1.22	5.44	.57	.53	2.87	.62	2.500	.125	.125	61.7
3	X .80	9.75	1.50	5.00	.68	.70	3.33	.58	3.000	.125	.125	59.5
4	X .87	12.24	1.80	6.83	.80	.74	3.86	.74	3.500	.125	.125	57.9
4	X .94	14.93	2.12	9.03	.91	.74	4.26	.80	4.000	.125	.125	56.6
5	X 1.02	17.86	2.46	11.86	1.03	.78	4.72	.87	4.500	.125	.125	55.6
5	X 1.09	20.84	2.82	14.59	1.16	.82	5.18	.93	5.000	.125	.125	54.6
5	X 1.13	23.75	3.11	17.79	1.34	.80	5.20	.97	5.500	.125	.125	53.7
5	X 1.16	26.84	3.19	18.01	1.28	.80	5.04	.99	6.000	.125	.125	52.7
5	X 1.21	29.94	3.23	15.02	1.17	.85	4.65	1.03	6.500	.125	.125	51.7
5	X 1.24	32.25	3.67	18.72	1.33	.89	5.11	1.09	7.000	.125	.125	50.5
5	X 1.35	34.10	4.12	22.31	1.43	.94	5.56	1.15	7.500	.125	.125	49.7
4	X 1.60	38.27	4.44	18.03	1.20	.84	4.66	1.36	8.000	.125	.125	48.4
5	X 1.67	42.71	5.35	22.73	1.41	1.00	4.50	1.42	8.500	.125	.125	47.4
5	X 1.67	46.49	5.03	29.92	1.62	1.05	5.95	1.43	9.000	.125	.125	46.5
5	X 1.74	50.37	5.98	26.05	1.50	1.06	4.34	1.40	9.500	.125	.125	45.5
7	X 1.77	52.11	5.59	35.73	1.76	1.11	6.39	1.51	10.000	.125	.125	44.6
5	X 1.82	55.00	6.33	34.01	1.72	1.13	5.37	1.53	10.500	.125	.125	43.3
7	X 1.88	59.13	6.13	42.16	1.91	1.18	6.02	1.59	11.000	.125	.125	42.4
5	X 1.98	65.26	6.76	35.92	1.76	1.14	5.86	1.51	11.500	.125	.125	41.4
7	X 2.07	69.13	7.40	42.67	1.91	1.21	6.72	1.69	12.000	.125	.125	40.4
5	X 2.13	74.33	7.40	50.12	2.00	1.24	5.76	1.77	12.500	.125	.125	39.6
7	X 2.22	78.27	8.16	42.64	1.93	1.24	5.76	1.82	13.000	.125	.125	38.4
7	X 2.32	82.27	8.94	50.44	2.00	1.32	6.18	1.90	13.500	.125	.125	37.4
6	X 2.56	88.11	9.61	59.02	2.22	1.40	6.60	1.98	14.000	.125	.125	36.4
7	X 2.65	92.27	10.54	63.29	2.27	1.50	6.60	2.18	14.500	.125	.125	35.4
6	X 2.75	96.46	11.20	73.73	2.44	1.59	6.41	2.34	15.000	.125	.125	34.4
7	X 2.85	100.82	12.98	67.96	2.64	1.73	6.77	2.64	15.500	.125	.125	33.4
6	X 3.21	110.75	14.05	100.75	2.81	1.83	7.17	2.86	16.000	.125	.125	32.4
5	X 3.28	120.35	13.20	70.76	2.35	1.87	5.33	2.86	16.500	.125	.125	31.4
7	X 3.38	124.74	14.49	82.97	2.57	1.76	5.72	2.86	17.000	.125	.125	30.4
7	X 3.47	131.10	15.74	96.31	2.73	1.88	6.12	2.86	17.500	.125	.125	29.4
6	X 3.62	135.00	17.50	113.12	2.92	2.03	6.47	3.26	18.000	.125	.125	28.4
6	X 3.94	140.80	18.86	129.15	3.11	2.12	6.85	3.35	18.500	.125	.125	27.4
9	X 4.34	146.55	20.64	149.08	3.31	2.32	7.18	3.70	19.000	.125	.125	26.4
9	X 4.47	150.43	22.33	168.76	3.50	2.44	7.56	3.81	19.500	.125	.125	25.4
10	X 4.60	155.53	23.84	189.02	3.69	2.57	7.93	3.92	20.000	.125	.125	24.4
9	X 4.76	160.57	25.04	165.99	3.44	2.49	7.01	4.00	20.500	.125	.125	23.4
9	X 4.89	171.24	25.34	186.86	3.63	2.63	7.37	4.17	21.000	.125	.125	22.4
10	X 5.32	175.73	27.12	209.11	3.83	2.76	7.74	4.28	21.500	.125	.125	21.4
10	X 5.50	180.33	29.51	237.41	4.02	2.96	8.04	4.58	22.000	.125	.125	20.4
11	X 5.64	184.94	31.33	263.19	4.22	3.10	8.40	4.81	22.500	.125	.125	19.4
11	X 5.79	189.57	33.17	290.49	4.41	3.24	8.76	4.93	23.000	.125	.125	18.4

10.0 IN. EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=10.00 SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	BEAM DIMENSIONS D TW	WF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	82.18	32.83	258.02	4.14	3.14	7.86	5.05	10.000	6.000	.438	2.75	135.0
11 X 6.07	86.67	34.81	285.78	4.34	3.29	8.21	5.17	10.500	6.000	.438	2.88	134.0
11 X 6.21	91.57	36.82	315.13	4.54	3.44	8.56	5.30	11.000	6.000	.438	3.00	132.9
12 X 7.38	101.20	43.14	395.22	4.91	3.89	9.11	6.29	12.000	5.000	.438	4.17	131.0
13 X 7.50	105.97	45.43	429.28	5.11	4.05	9.45	6.45	12.500	5.000	.438	4.23	130.1
13 X 7.98	107.81	49.36	457.10	5.22	4.24	9.26	6.80	12.500	6.000	.500	4.23	130.1
13 X 8.18	112.07	51.84	497.09	5.41	4.41	9.59	6.95	13.000	5.000	.500	4.38	129.2
14 X 8.35	117.55	54.36	538.99	5.61	4.59	9.91	7.11	13.500	5.000	.500	4.54	128.4

TABLE 4
EFFECTIVE PLATING WIDTH = 12"
3/8" - 1" PLATING THICKNESSES

12.0 IN. EFFECTIVE WIDTH

.375 IN. PLATE (AREA= 4.50 SQ. IN.)

NO.	D X L2/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	BEAM DIMENSIONS				TF	SHEAR AREA	MAX. SPAN
									D	TW	WF	TF			
2	X .50	2.51	.48	.76	.39	.30	1.57	.43	1.500	.125	2.000	.125	.23	53.2	
2	X .56	3.34	.07	1.37	.52	.35	2.03	.49	2.000	.125	2.000	.125	.30	49.3	
3	X .65	5.22	.89	2.20	.65	.40	2.48	.55	2.500	.125	2.000	.125	.36	47.3	
3	X .72	7.20	1.12	3.27	.80	.45	2.92	.62	3.000	.125	2.000	.125	.42	45.8	
3	X .72	5.38	1.05	2.96	.71	.43	2.45	.62	2.500	.125	2.500	.125	.36	61.7	
3	X .80	7.72	1.31	3.78	.85	.49	2.89	.66	3.000	.125	2.500	.125	.42	59.5	
4	X .87	9.52	1.59	5.28	1.00	.56	3.32	.74	3.500	.125	2.500	.125	.48	57.9	
4	X .94	11.35	1.89	7.10	1.16	.63	3.75	.80	4.000	.125	2.500	.125	.55	56.8	
5	X 1.02	13.20	2.21	9.24	1.31	.70	4.18	.87	4.500	.125	2.500	.125	.61	55.6	
5	X 1.09	15.07	2.55	11.72	1.47	.78	4.60	.93	5.000	.125	2.500	.125	.67	54.6	
4	X 1.13	12.52	2.32	9.19	1.30	.73	3.04	.87	4.000	.125	3.000	.160	.55	70.1	
6	X 1.16	16.95	2.91	14.58	1.63	.86	5.01	.99	5.500	.125	2.500	.125	.73	93.7	
5	X 1.21	14.46	2.92	11.85	1.46	.82	4.06	1.03	4.500	.125	3.000	.160	.61	64.7	
5	X 1.28	18.40	3.34	14.91	1.63	.91	4.77	1.09	5.000	.125	3.000	.160	.67	67.5	
5	X 1.35	18.35	3.77	18.36	1.80	1.00	4.07	1.15	5.500	.125	3.000	.160	.73	66.5	
4	X 1.60	14.11	4.01	13.06	1.53	.97	3.41	1.36	4.500	.125	4.000	.220	.55	98.4	
5	X 1.57	18.17	4.20	17.45	1.72	1.08	3.80	1.42	4.500	.125	4.000	.220	.61	96.4	
5	X 1.67	20.29	4.58	23.83	2.01	1.17	5.20	1.43	5.000	.160	3.000	.160	1.02	65.5	
5	X 1.74	18.24	5.20	21.76	1.91	1.19	4.18	1.48	5.500	.160	3.000	.160	.67	94.5	
7	X 1.77	22.24	5.11	23.57	2.18	1.26	5.53	1.51	6.500	.160	3.000	.160	1.10	64.6	
5	X 1.82	20.31	5.82	26.59	2.10	1.31	4.57	1.55	5.500	.125	4.000	.220	.73	93.0	
7	X 1.86	24.19	5.06	33.84	2.36	1.40	5.98	1.59	7.000	.160	3.000	.160	1.18	63.8	
5	X 1.88	21.39	5.21	28.32	2.15	1.32	5.05	1.51	6.000	.160	3.500	.190	1.02	73.4	
7	X 1.98	23.39	6.22	38.78	2.34	1.44	5.43	1.59	6.500	.160	3.500	.190	1.18	77.4	
7	X 2.07	25.40	6.86	39.82	2.52	1.57	5.81	1.77	7.000	.160	3.500	.190	1.18	91.6	
5	X 2.13	22.32	6.79	35.14	2.29	1.49	4.89	1.52	6.500	.160	4.000	.220	1.02	91.6	
7	X 2.22	24.38	7.50	39.44	2.48	1.62	5.26	1.90	7.500	.160	4.000	.220	1.18	90.4	
7	X 2.32	26.45	6.25	40.51	2.67	1.75	5.82	1.98	7.000	.160	4.000	.220	1.18	89.3	
5	X 2.50	23.43	6.34	40.90	2.47	1.75	4.03	2.18	6.000	.160	5.000	.250	1.02	119.0	
7	X 2.55	25.57	9.72	48.42	2.68	1.89	4.98	2.26	7.000	.160	5.000	.250	1.10	117.3	
7	X 2.75	27.71	10.82	56.83	2.88	2.04	5.33	2.34	7.500	.160	5.000	.250	1.18	115.8	
5	X 3.10	29.68	11.95	67.21	3.07	2.25	5.52	2.64	7.500	.190	5.000	.250	1.50	114.5	
9	X 3.21	32.02	12.95	77.22	3.27	2.41	5.90	2.74	8.000	.190	5.000	.250	1.59	113.3	
5	X 3.28	24.48	12.20	51.90	2.67	2.12	4.25	2.80	6.000	.160	6.000	.313	1.02	140.0	
7	X 3.38	26.71	13.37	61.26	2.88	2.29	4.58	2.88	6.500	.160	6.000	.313	1.10	145.6	
7	X 3.47	28.95	14.20	71.44	3.09	2.47	4.91	2.96	7.000	.160	5.000	.313	1.18	143.5	
8	X 3.62	31.25	16.13	83.76	3.29	2.68	5.19	3.26	7.500	.190	5.000	.313	1.50	141.8	
8	X 3.74	33.52	17.41	95.95	3.50	2.86	5.51	3.35	8.000	.190	5.000	.313	1.59	140.2	
9	X 4.34	39.90	19.16	113.89	3.68	3.09	5.79	3.70	8.500	.220	5.000	.313	1.95	138.7	
9	X 4.47	38.23	20.94	125.24	3.85	3.28	6.10	3.81	9.000	.220	5.000	.313	2.06	137.4	
10	X 4.60	40.22	21.94	140.56	4.09	3.47	6.41	3.92	9.500	.220	6.000	.313	2.17	136.2	
9	X 4.70	36.49	21.78	121.34	3.70	3.32	5.26	4.06	8.500	.220	5.000	.375	1.95	136.7	
9	X 4.99	38.64	23.32	136.80	3.97	3.52	5.00	4.17	9.000	.220	5.000	.375	2.06	137.4	
10	X 5.02	41.21	24.58	153.16	4.18	3.72	5.16	4.28	9.500	.220	7.500	.375	2.17	136.2	
9	X 5.42	37.34	25.88	160.20	3.87	3.65	5.23	4.62	8.500	.220	7.500	.375	1.95	166.4	
10	X 5.50	43.83	27.64	173.50	4.35	3.96	6.42	4.68	10.000	.250	5.000	.375	2.59	135.0	
9	X 5.55	39.76	27.06	153.58	4.03	3.86	5.51	4.63	9.000	.220	7.500	.375	2.00	178.5	
11	X 5.64	48.25	28.71	192.64	4.55	4.18	6.71	4.81	10.500	.250	6.000	.375	2.72	134.0	
10	X 5.68	42.19	29.57	172.32	4.29	4.08	5.80	4.84	9.500	.220	7.500	.375	2.17	176.8	
11	X 5.79	48.70	30.40	212.90	4.75	4.37	7.00	4.93	11.000	.250	5.000	.375	2.84	132.9	

12.0 IN. EFFECTIVE WIDTH

.375 IN. PLATE (AREA= 4.51 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	TH	WF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	47.43	30.07	180.07	4.42	4.19	0.19	5.05	10.003	.250	5.000	.438	2.59	135.0
11 X 6.07	46.31	31.50	200.48	4.62	4.40	0.47	5.17	10.200	.250	5.000	.438	2.72	134.0
12 X 6.10	44.93	32.05	194.06	4.46	4.32	0.60	5.25	10.000	.250	7.500	.375	2.59	175.2
11 X 6.21	43.40	33.74	220.00	4.03	4.02	0.60	5.30	11.000	.250	5.000	.438	2.84	132.9
11 X 6.30	47.43	33.96	215.20	4.07	4.34	0.34	5.37	10.200	.250	7.500	.375	2.72	173.8
11 X 6.45	49.94	35.89	237.55	4.07	4.76	0.02	5.50	11.000	.250	7.500	.375	2.84	172.4
12 X 7.38	55.38	39.14	203.78	5.13	5.12	7.25	0.29	12.000	.313	5.000	.438	3.87	131.0
13 X 7.56	50.02	41.20	310.19	5.32	5.35	7.23	0.45	12.500	.313	0.000	.438	4.03	130.1
12 X 7.02	50.53	41.40	294.87	5.13	5.20	7.11	0.49	12.000	.313	7.500	.375	3.87	169.9
13 X 7.80	58.70	43.01	322.13	5.36	5.49	7.39	0.65	12.500	.313	7.500	.375	4.03	160.8
13 X 7.90	50.77	44.77	327.20	5.38	5.37	7.61	0.30	12.500	.313	5.000	.500	4.03	130.1
13 X 7.49	01.39	45.78	356.76	5.57	5.71	7.06	0.81	13.000	.313	7.500	.375	4.19	167.7
13 X 6.10	01.48	47.01	356.32	5.38	5.80	7.28	0.95	13.000	.313	6.000	.500	4.19	129.2
14 X 8.17	64.10	47.39	303.75	5.76	5.94	7.93	0.90	13.500	.313	7.500	.375	4.34	166.7
14 X 8.35	04.22	49.20	380.87	5.77	0.32	7.85	7.11	13.200	.313	5.000	.500	4.34	120.4
12 X 8.41	57.27	48.18	323.83	5.27	5.05	0.72	7.10	12.000	.313	8.000	.438	3.87	183.2
13 X 8.59	00.53	50.01	353.52	5.47	5.89	0.39	7.32	12.500	.313	8.000	.438	4.03	182.0
13 X 8.78	02.04	53.06	384.08	5.67	0.13	7.25	7.48	13.000	.313	8.000	.438	4.19	180.8
14 X 8.96	65.00	55.54	417.32	5.80	0.36	7.51	7.03	13.500	.313	8.000	.438	4.34	179.7
12 X 8.37	57.91	52.77	341.70	5.31	5.30	0.47	7.54	12.000	.313	8.000	.500	3.87	183.2
13 X 9.15	00.71	55.40	372.95	5.51	6.14	0.73	7.80	12.200	.313	8.000	.500	4.03	182.0
13 X 9.34	03.53	58.05	405.72	5.71	0.39	6.49	7.95	13.000	.313	8.000	.500	4.19	180.8
14 X 9.52	00.38	50.73	440.05	5.91	0.03	7.25	8.11	13.500	.313	8.000	.500	4.34	179.7

12.0 IN. EFFECTIVE WIDTH
 .736 IN. PLATE (AREA= 5.25 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	W		
2 X .50	2.50	.49	.80	.37	.32	1.02	.43	1.500	2.000	.125	.24
2 X .50	3.27	.69	1.43	.50	.36	2.08	.49	2.000	2.000	.125	.30
3 X .65	5.02	.90	2.29	.03	.41	2.53	.55	2.500	2.000	.125	.37
3 X .72	7.77	1.14	3.40	.70	.40	2.98	.62	3.000	2.000	.125	.43
3 X .80	8.38	1.06	2.67	.67	.43	2.51	.52	2.500	2.500	.125	.37
3 X .80	8.38	1.33	3.92	.81	.49	2.95	.58	3.000	2.500	.125	.43
4 X .50	10.07	1.51	5.48	.90	.54	3.39	.74	3.500	2.500	.125	.49
4 X .50	12.12	1.92	7.35	1.10	.61	3.83	.80	4.000	2.500	.125	.55
5 X 1.00	14.22	2.44	9.56	1.25	.67	4.27	.87	4.500	2.500	.125	.62
5 X 1.00	16.34	2.56	12.12	1.43	.74	4.70	.93	5.000	2.500	.125	.68
4 X 1.13	13.56	2.56	9.55	1.24	.70	3.73	.97	4.000	3.000	.160	.55
5 X 1.21	18.48	2.94	12.07	1.55	.82	5.12	.99	5.500	2.500	.125	.74
5 X 1.21	19.76	2.90	12.30	1.40	.78	4.16	1.03	4.500	3.000	.160	.62
5 X 1.28	17.90	3.38	13.40	1.56	.80	4.59	1.09	5.000	3.000	.160	.68
6 X 1.50	20.21	3.82	19.06	1.73	.94	4.99	1.15	5.500	3.000	.160	.74
4 X 1.50	15.59	4.06	14.30	1.47	.92	3.92	1.42	4.000	4.000	.220	.62
5 X 1.50	17.77	4.55	18.24	1.65	1.02	5.04	1.43	5.000	3.000	.160	.85
5 X 1.50	22.49	4.04	24.76	1.93	1.10	4.32	1.48	5.000	4.000	.220	.68
5 X 1.74	20.31	5.26	22.72	1.84	1.12	4.74	1.51	5.000	3.000	.160	.85
7 X 1.77	24.73	5.18	29.70	2.10	1.20	5.17	1.55	6.500	4.000	.220	.85
5 X 1.82	22.08	5.89	27.76	2.02	1.22	4.71	1.59	7.000	3.000	.160	.93
7 X 1.88	26.97	5.74	35.18	2.27	1.30	5.13	1.59	7.000	4.000	.220	.85
5 X 1.98	23.84	5.58	35.21	2.07	1.24	5.20	1.59	6.500	3.500	.190	.85
7 X 2.07	28.45	6.94	41.56	2.43	1.35	5.59	1.69	8.000	3.500	.190	.85
5 X 2.13	25.06	6.87	35.70	2.22	1.39	5.98	1.77	6.500	4.000	.220	.85
7 X 2.22	27.38	7.59	41.23	2.40	1.51	5.65	1.82	6.500	4.000	.220	.85
7 X 2.32	29.73	6.33	48.42	2.59	1.53	5.81	1.98	7.000	4.000	.220	.85
5 X 2.55	26.40	8.34	43.00	2.41	1.53	4.81	2.18	6.000	5.000	.250	.85
7 X 2.65	28.85	5.85	50.58	2.60	1.76	5.17	2.26	6.500	5.000	.250	.85
7 X 2.75	31.31	10.75	59.51	2.80	1.90	5.54	2.34	7.000	5.000	.250	.85
5 X 3.10	33.74	12.10	70.71	2.99	2.10	5.84	2.54	7.500	5.000	.250	.85
5 X 3.21	30.20	13.12	81.24	3.19	2.24	6.19	2.74	8.000	5.000	.250	.85
5 X 3.28	27.76	12.55	92.02	2.81	1.93	4.86	2.80	9.000	5.000	.313	.85
7 X 3.38	30.32	13.53	64.90	2.83	2.14	4.80	2.88	6.500	6.000	.313	.85
7 X 3.47	32.88	14.73	75.07	3.04	2.30	5.14	2.90	7.000	5.000	.313	.85
8 X 3.52	33.46	16.34	88.78	3.23	2.50	5.43	3.26	7.500	5.000	.313	.85
5 X 3.94	33.34	17.83	101.65	3.44	2.67	5.77	3.35	8.000	5.000	.313	.85
5 X 4.34	40.00	19.74	117.52	3.62	2.89	6.05	3.70	8.500	5.000	.313	.85
5 X 4.47	43.29	20.86	132.74	3.83	3.07	6.37	3.81	9.000	5.000	.313	.85
10 X 4.50	45.91	22.26	148.97	4.03	3.24	6.69	4.06	9.500	5.000	.313	.85
9 X 4.75	41.40	22.09	126.75	3.72	3.11	5.83	4.06	8.500	5.000	.375	.85
9 X 4.83	44.37	23.55	142.25	3.93	3.30	6.14	4.17	9.000	5.000	.375	.85
10 X 5.02	46.75	22.24	162.86	4.13	3.48	6.45	4.28	9.500	5.000	.375	.85
9 X 5.22	42.43	26.45	145.62	3.84	3.43	5.51	4.62	8.500	7.500	.375	.85
11 X 5.50	47.01	27.70	164.51	4.31	3.72	6.72	4.58	10.000	5.000	.375	.85
9 X 5.55	45.17	26.26	184.07	4.05	3.63	5.81	4.73	9.000	7.500	.375	.85
11 X 5.64	52.34	29.16	204.82	4.57	3.91	7.02	4.81	10.500	6.000	.375	.85
11 X 5.60	47.92	34.10	183.71	4.27	3.83	6.10	4.84	9.500	7.500	.375	.85
11 X 5.79	55.08	30.68	226.53	4.71	4.11	7.33	4.93	11.000	8.000	.375	.85

12.0 IN. EFFECTIVE WIDTH
 .430 IN. PLATE (AREA 5.25 SQ. IN.)

NUM. J X LB/FT	ZFL	ZFL	INERTIA	R	YF	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	Q	1W		
10 X 5.32	50.34	50.55	198.42	4.39	3.94	6.50	5.05	10.000	.250	5.000	135.0
11 X 6.07	53.12	52.40	220.12	4.00	4.14	6.79	5.17	10.500	.250	5.000	134.0
12 X 6.16	50.91	52.54	207.21	4.44	4.07	6.37	5.25	10.000	.250	7.500	175.2
11 X 6.21	55.91	54.28	243.07	4.00	4.35	7.09	5.30	11.000	.250	6.000	132.9
11 X 6.30	53.72	54.49	229.72	4.05	4.28	6.60	5.37	10.500	.250	7.500	173.8
11 X 6.45	56.54	56.46	253.51	4.60	4.48	6.95	5.50	11.000	.250	7.500	172.4
12 X 7.34	62.34	59.85	302.36	5.12	4.35	7.59	6.29	12.000	.313	6.000	151.0
13 X 7.20	62.20	61.96	330.45	5.32	5.06	7.38	6.45	12.500	.313	6.000	153.1
12 X 7.02	65.06	62.21	314.51	5.18	4.99	7.45	5.49	12.000	.313	7.500	169.9
13 X 7.30	66.14	64.40	343.50	5.37	5.20	7.74	6.05	12.500	.313	7.500	168.8
13 X 7.35	69.02	68.63	375.94	5.57	5.42	8.02	6.81	13.000	.313	6.000	130.1
13 X 8.16	69.14	67.09	380.19	5.58	5.50	7.94	6.95	13.000	.313	6.000	167.7
14 X 5.17	72.33	70.38	455.65	5.70	5.33	8.33	6.96	13.500	.313	7.500	129.2
14 X 6.35	72.17	70.21	412.09	5.78	5.72	8.22	7.11	13.500	.313	5.000	166.7
12 X 6.41	64.52	69.05	340.58	5.28	5.37	7.07	7.10	12.000	.313	5.000	123.4
13 X 6.59	67.57	61.53	378.21	5.48	5.60	7.34	7.32	12.500	.313	8.000	183.2
13 X 6.78	70.64	64.03	411.39	5.69	5.32	7.51	7.48	13.000	.313	8.000	182.0
14 X 6.90	73.73	60.57	440.15	5.88	6.05	7.89	7.53	13.500	.313	8.000	180.8
12 X 8.97	65.20	53.73	366.52	5.33	5.02	6.82	7.64	12.000	.313	8.000	173.7
13 X 9.15	68.30	56.41	399.80	5.54	5.85	7.09	7.80	12.500	.313	8.000	181.2
13 X 9.34	71.40	57.12	434.81	5.74	6.08	7.35	7.95	13.000	.313	8.000	182.0
14 X 9.52	74.53	51.86	471.41	5.94	6.32	7.62	8.11	13.500	.313	8.000	180.8
											179.7

12.0 IN. EFFECTIVE WIDTH

500 IN. PLATE (AREA= 6.00'SQ. IN.)

NUM. O X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	TF		
2 X .50	2.46	.50	.84	.56	.34	1.06	.43	1.500	.125	2.000	.125
2 X .58	3.95	.70	1.49	.48	.38	2.12	.49	2.000	.125	2.000	.125
3 X .55	5.08	.92	2.37	.50	.42	2.58	.55	2.500	.125	2.000	.125
3 X .72	7.00	1.16	3.51	.73	.46	3.04	.62	3.000	.125	2.000	.125
3 X .72	6.27	1.08	3.21	.65	.44	2.56	.62	2.500	.125	2.500	.125
3 X .80	8.26	1.35	4.00	.76	.49	3.01	.68	3.000	.125	2.500	.125
4 X .07	10.43	1.64	5.06	.92	.54	3.46	.74	3.500	.125	2.500	.125
4 X .94	12.60	1.94	7.58	1.50	.60	3.90	.80	4.000	.125	2.500	.125
5 X 1.02	14.97	2.27	9.85	1.60	.60	4.34	.87	4.500	.125	2.500	.125
5 X 1.09	17.32	2.61	12.40	1.84	.72	4.78	.93	5.000	.125	2.500	.125
5 X 1.13	14.36	2.59	9.87	1.59	.69	3.81	.87	4.000	.125	3.000	.100
5 X 1.16	19.71	2.98	15.51	1.49	.79	5.21	.99	5.500	.125	2.500	.125
5 X 1.21	16.79	2.79	12.70	1.34	.76	4.24	1.03	4.500	.125	3.000	.100
5 X 1.26	19.20	3.42	15.95	1.50	.83	4.67	1.09	5.000	.125	3.000	.100
5 X 1.35	21.70	3.85	19.00	1.65	.90	5.10	1.15	5.500	.125	3.000	.100
4 X 1.00	10.03	4.41	14.00	1.42	.88	3.62	1.36	4.000	.125	4.000	.200
5 X 1.67	19.40	4.70	18.94	1.60	.97	4.03	1.42	4.500	.125	4.000	.200
5 X 1.07	24.39	4.09	23.59	1.80	1.05	5.45	1.43	6.000	.160	3.000	.160
5 X 1.74	22.12	5.32	23.57	1.77	1.07	4.43	1.48	5.000	.125	3.000	.160
7 X 1.77	26.91	5.24	33.68	2.02	1.14	5.86	1.51	6.500	.160	3.000	.160
5 X 1.82	24.78	5.95	20.78	1.95	1.16	4.84	1.55	5.500	.125	4.000	.200
7 X 1.88	29.45	5.80	30.54	2.19	1.23	6.27	1.59	7.000	.160	3.000	.160
5 X 1.38	26.01	5.74	30.56	2.00	1.16	5.32	1.61	6.000	.160	3.500	.190
7 X 1.98	28.80	6.37	36.45	2.18	1.27	5.73	1.69	7.000	.160	3.500	.190
7 X 2.37	31.15	7.82	42.90	2.35	1.38	6.12	1.77	7.000	.160	3.500	.190
5 X 2.13	27.41	8.95	36.33	2.15	1.31	5.19	1.82	6.000	.160	4.000	.220
7 X 2.22	30.07	7.57	42.80	2.33	1.42	5.58	1.90	6.500	.160	4.000	.220
7 X 2.32	32.74	8.72	50.25	2.51	1.53	5.97	1.98	7.000	.160	4.000	.220
6 X 2.56	29.13	9.04	44.84	2.34	1.34	4.90	2.18	8.000	.160	5.000	.250
7 X 2.05	31.90	9.94	53.04	2.53	1.66	5.34	2.26	6.500	.160	5.000	.250
7 X 2.75	34.60	13.00	62.02	2.73	1.79	5.71	2.34	7.000	.160	5.000	.250
8 X 3.10	37.36	12.24	73.77	2.92	1.97	6.03	2.64	7.500	.190	5.000	.250
8 X 3.21	40.15	13.26	84.74	3.11	2.11	6.39	2.74	8.000	.190	5.000	.250
5 X 3.20	30.84	12.40	57.76	2.40	1.37	4.63	2.80	8.000	.160	5.000	.313
7 X 3.30	33.72	13.57	69.10	2.77	2.12	4.98	2.88	8.500	.160	5.000	.313
7 X 3.47	36.80	14.89	79.37	2.96	2.17	5.33	2.90	7.000	.160	5.000	.313
5 X 3.52	39.47	15.52	93.16	3.17	2.30	5.04	3.26	7.500	.190	5.000	.313
8 X 3.94	42.36	17.83	100.65	3.38	2.52	5.93	3.35	8.000	.190	5.000	.313
9 X 4.34	45.28	19.07	123.41	3.57	2.57	6.27	3.70	8.500	.220	6.000	.313
7 X 4.77	40.19	21.60	139.34	3.77	2.89	6.61	3.81	9.000	.220	5.000	.313
11 X 4.00	51.12	22.53	150.37	3.97	3.30	6.94	3.92	9.500	.220	5.000	.313
9 X 4.70	46.15	22.30	135.55	3.67	2.94	6.06	4.00	8.500	.220	5.000	.375
10 X 4.67	49.12	23.94	152.90	3.88	3.11	6.39	4.17	9.000	.220	5.000	.375
10 X 5.02	52.11	25.24	171.41	4.08	3.29	6.71	4.28	9.500	.220	5.000	.375
10 X 5.42	47.36	26.77	153.94	3.61	3.25	5.75	4.62	8.500	.220	7.500	.375
10 X 5.03	55.23	27.62	194.26	4.26	3.52	6.98	4.73	10.000	.250	6.000	.375
10 X 5.35	50.43	28.60	173.39	4.02	3.44	6.00	4.73	9.000	.220	7.500	.375
11 X 5.04	58.20	29.25	219.04	4.47	3.70	7.30	4.81	10.500	.250	7.500	.375
11 X 5.38	53.49	30.46	194.10	4.23	3.63	6.67	4.84	9.500	.220	7.500	.375
11 X 5.79	61.30	31.30	238.26	4.67	3.89	7.61	4.93	11.000	.250	8.000	.375

12.0 IN. EFFECTIVE WIDTH
 .500 IN. PLATE (AREA= 6.00 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	----- BEAM DIMENSIONS -----			SHEAR AREA	MAX. SPAN
							AREA	U	TM	WF	TF
10 X 5.92	56.08	30.95	209.41	4.35	3.73	6.77	5.05	10.000	.250	5.000	.438
11 X 6.37	54.17	32.53	232.27	4.56	3.93	7.07	5.17	10.500	.250	5.000	.438
10 X 6.16	56.74	32.97	218.94	4.41	3.80	6.84	5.25	10.000	.250	7.500	.375
11 X 6.21	62.27	34.74	220.40	4.70	4.12	7.38	5.30	11.000	.250	5.000	.438
11 X 6.36	59.80	34.94	242.67	4.82	4.35	6.95	5.37	10.500	.250	7.500	.375
11 X 6.42	62.98	36.94	267.76	4.83	4.25	7.25	5.50	11.000	.250	7.500	.375
12 X 7.38	69.17	40.47	319.12	5.13	4.81	7.89	6.29	12.000	.313	5.000	.438
13 X 7.58	72.33	42.81	345.09	5.29	4.82	8.18	6.45	12.500	.313	6.000	.438
12 X 7.52	69.39	42.82	332.21	5.16	4.75	7.75	6.49	12.000	.313	7.500	.375
13 X 7.50	73.25	45.68	362.77	5.30	4.95	8.05	6.80	12.500	.313	7.500	.375
13 X 7.38	73.37	40.31	369.07	5.37	5.03	7.97	6.80	12.500	.313	6.000	.500
13 X 7.49	78.52	47.34	394.86	5.55	5.10	8.34	6.81	13.000	.313	7.500	.375
13 X 8.10	79.82	48.04	401.75	5.57	5.24	8.20	6.95	13.000	.313	5.000	.500
14 X 8.17	79.82	49.84	428.49	5.75	5.37	8.83	6.96	13.500	.313	7.500	.375
14 X 8.35	79.99	51.00	432.99	5.77	5.45	8.55	7.11	13.500	.313	5.000	.500
12 X 8.41	71.04	49.79	387.10	5.28	5.13	7.37	7.16	12.000	.313	8.000	.438
13 X 8.59	74.99	52.31	400.59	5.48	5.34	7.86	7.32	12.500	.313	8.000	.438
13 X 8.78	76.36	54.86	435.03	5.89	5.56	7.94	7.48	13.000	.313	8.000	.438
14 X 8.96	81.75	57.45	472.32	5.89	5.78	8.22	7.53	13.500	.313	8.000	.438
12 X 8.97	72.49	54.55	389.88	5.34	5.37	7.13	7.64	12.000	.313	8.000	.500
13 X 9.15	75.39	57.28	424.34	5.55	5.59	7.41	7.80	12.500	.313	8.000	.500
13 X 9.34	79.32	58.83	461.30	5.75	5.52	7.88	7.95	13.000	.313	8.000	.500
14 X 9.52	82.77	62.81	499.98	5.95	6.04	7.96	8.11	13.500	.313	8.000	.500

12.3 IN. EFFECTIVE WIDTH
 .625 IN. PLATE (AREA=7.53 SQ. IN.)

NUM. U X LB/FT	ZPL	ZFL	INERTIA	K	Y _P	Y _F	AREA	U	W	TF	SHEAR AREA	MAX. SPAN
2 X .50	2.36	.53	.92	.34	.39	1.74	.43	1.500	.125	.125	.27	53.2
2 X .53	3.83	.73	1.61	.42	.42	2.21	.49	2.000	.125	.125	.33	49.3
3 X .55	5.00	.95	2.54	.56	.45	2.67	.55	2.500	.125	.125	.39	47.3
3 X .72	7.01	1.19	3.73	.68	.49	3.13	.62	3.000	.125	.125	.45	45.3
3 X .72	8.25	1.12	2.96	.60	.47	2.05	.62	2.500	.125	.125	.39	61.7
3 X .80	8.40	1.39	4.32	.73	.51	3.11	.68	3.000	.125	.125	.45	59.5
4 X .87	10.72	1.58	5.99	.85	.56	3.57	.74	3.500	.125	.125	.52	57.9
4 X .94	13.24	1.79	8.00	.98	.60	4.02	.80	4.000	.125	.125	.58	56.6
5 X 1.02	15.00	2.32	10.37	1.11	.65	4.47	.87	4.500	.125	.125	.64	55.6
5 X 1.09	16.58	2.67	13.12	1.25	.71	4.92	.93	5.000	.125	.125	.70	54.6
4 X 1.13	15.37	2.05	10.44	1.11	.68	3.95	.97	4.000	.125	.160	.58	70.1
5 X 1.16	21.37	3.34	18.28	1.34	.76	5.36	.99	5.500	.125	.125	.77	53.7
5 X 1.21	18.19	3.30	13.41	1.25	.80	4.83	1.09	5.000	.125	.160	.64	68.7
5 X 1.28	21.09	3.48	16.82	1.40	.86	5.26	1.19	5.500	.125	.160	.70	67.5
5 X 1.32	24.04	3.93	20.70	1.55	.86	5.78	1.30	6.000	.125	.160	.77	60.5
5 X 1.60	18.71	4.20	15.86	1.34	.95	3.78	1.30	4.000	.125	.220	.58	98.7
5 X 1.97	21.82	4.80	20.10	1.50	.92	4.20	1.42	4.500	.125	.220	.64	90.4
5 X 1.67	27.37	4.79	27.01	1.74	.99	5.04	1.43	5.000	.160	.160	1.06	65.5
5 X 1.74	24.99	5.42	25.05	1.67	1.00	4.82	1.48	5.000	.125	.220	.70	94.5
7 X 1.77	30.41	5.74	32.37	1.93	1.00	6.06	1.51	6.500	.160	.160	1.14	84.6
5 X 1.82	20.19	6.60	36.53	1.84	1.08	5.44	1.55	5.500	.125	.220	.77	93.0
5 X 1.86	33.47	5.92	38.33	2.05	1.15	6.48	1.59	7.000	.160	.160	1.22	63.8
5 X 1.98	29.23	5.85	32.36	1.89	1.10	5.53	1.61	6.000	.160	.190	1.06	78.4
7 X 1.98	32.07	6.99	38.56	2.05	1.18	5.94	1.69	6.500	.160	.190	1.14	77.4
7 X 2.07	35.82	7.15	45.45	2.21	1.27	6.36	1.77	7.000	.160	.190	1.22	76.4
7 X 2.13	31.40	7.08	38.29	2.03	1.22	5.41	1.82	6.500	.160	.220	1.06	91.6
7 X 2.22	34.09	7.32	42.40	2.20	1.31	5.81	1.93	6.500	.160	.220	1.14	90.4
7 X 2.32	37.93	8.58	53.55	2.37	1.41	6.22	1.98	7.000	.160	.220	1.22	89.3
5 X 2.56	33.89	9.21	47.97	2.23	1.42	5.21	2.18	6.500	.160	.250	1.06	119.0
7 X 2.56	37.24	10.12	56.70	2.41	1.52	5.80	2.26	6.500	.160	.250	1.14	117.3
7 X 2.75	40.61	11.05	66.26	2.59	1.63	5.99	2.34	7.000	.190	.250	1.22	115.8
8 X 3.10	43.74	12.48	78.93	2.79	1.80	6.33	2.54	7.500	.190	.250	1.54	114.5
5 X 3.21	47.30	13.52	90.67	2.93	1.92	6.71	2.74	8.000	.190	.250	1.54	114.5
5 X 3.28	50.40	12.72	82.44	2.40	1.72	4.91	2.80	6.500	.160	.313	1.06	113.3
7 X 3.38	39.90	13.92	73.54	2.86	1.84	5.28	2.86	6.500	.160	.313	1.06	148.0
7 X 3.47	43.40	15.15	85.84	2.86	1.84	5.28	2.86	6.500	.160	.313	1.06	148.0
5 X 3.32	46.06	16.03	100.02	3.06	2.15	5.65	2.96	7.000	.190	.313	1.54	143.5
6 X 3.94	50.37	18.16	115.14	3.26	2.29	6.34	3.26	8.000	.190	.313	1.54	141.8
5 X 4.34	53.50	20.00	133.39	3.45	2.48	6.65	3.70	8.500	.220	.313	2.01	139.7
9 X 4.47	57.39	21.51	150.34	3.65	2.52	7.30	3.81	9.000	.220	.313	2.12	137.4
10 X 4.60	60.92	22.90	166.34	3.85	2.77	7.35	3.92	9.500	.220	.313	2.23	136.2
9 X 4.75	55.37	22.81	147.18	3.57	2.67	8.45	4.00	8.500	.220	.375	2.01	136.7
9 X 4.89	58.07	24.72	165.30	3.77	2.83	6.80	4.17	9.000	.220	.375	2.12	137.4
10 X 5.42	62.27	26.06	185.99	3.97	2.99	7.14	4.28	9.500	.220	.375	2.23	136.2
5 X 5.42	56.77	27.30	168.23	3.73	2.96	8.16	4.62	8.500	.220	.375	2.01	130.4
10 X 5.55	65.92	29.17	211.01	4.19	3.20	7.42	4.68	10.000	.250	.375	2.66	135.0
9 X 5.55	60.45	29.17	189.39	3.94	3.13	6.49	4.73	7.500	.220	.375	2.12	178.5
11 X 5.04	69.55	30.19	234.18	4.30	3.37	7.76	4.81	10.500	.250	.375	2.76	136.8
10 X 5.53	64.14	31.07	211.93	4.14	3.30	6.82	4.84	9.500	.220	.375	2.23	178.8
11 X 5.79	73.23	31.96	258.72	4.50	3.53	8.09	4.93	11.000	.250	.375	2.91	132.9

12.3 IN. EFFECTIVE WIDTH

.625 IN. PLATE (AREA= 7.50 SQ. IN.)

NUM. J X LB/FT	BEAM DIMENSIONS				SHEAR		MAX. SPAN
	AREA	J	IN	WF	AREA	TF	
11 X 5.32	31.02	31.02	.250	5.000	2.66	.438	135.0
11 X 6.37	33.55	33.55	.250	5.000	2.78	.438	134.0
11 X 6.16	33.67	33.67	.250	7.500	2.80	.375	175.2
11 X 6.21	35.50	35.50	.250	6.000	2.91	.438	132.9
11 X 6.34	35.68	35.68	.250	7.500	2.78	.375	173.8
11 X 6.55	37.73	37.73	.250	7.500	2.91	.375	172.4
12 X 7.38	41.47	41.47	.313	6.000	3.95	.438	131.0
13 X 7.26	43.68	43.68	.313	6.000	4.11	.438	130.1
12 X 7.52	43.90	43.90	.313	7.500	3.92	.375	169.9
13 X 7.55	46.19	46.19	.313	7.500	4.11	.375	165.6
13 X 7.39	47.47	47.47	.313	6.000	4.11	.500	130.1
13 X 7.35	48.52	48.52	.313	7.500	4.26	.375	167.7
13 X 8.16	49.87	49.87	.313	6.000	4.26	.500	123.2
14 X 8.17	50.89	50.89	.313	7.500	4.42	.375	166.7
14 X 8.35	52.29	52.29	.313	5.000	4.42	.500	128.4
12 X 8.41	51.01	51.01	.313	8.000	3.95	.438	163.2
13 X 8.29	53.00	53.00	.313	8.000	4.11	.438	162.0
13 X 8.76	56.22	56.22	.313	8.000	4.26	.438	160.8
14 X 8.96	58.38	58.38	.313	8.000	4.42	.438	179.7
12 X 9.37	55.85	55.85	.313	9.000	3.95	.500	163.2
13 X 9.15	58.59	58.59	.313	9.000	4.11	.500	162.0
13 X 9.34	51.52	51.52	.313	8.000	4.26	.500	160.8
14 X 9.52	54.39	54.39	.313	8.000	4.42	.500	179.7

12.0 IN. EFFECTIVE WIDTH

.750 IN. PLATE (AREA= 9.00' SQ. IN.)

NUM. D X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	TH	HF	TF	SHEAR AREA	MAX. SPAN
2 X .50	2.26	.55	1.03	.33	.44	1.81	.43	1.500	.125	2.000	.125	.28	53.2
2 X .58	3.09	.76	1.73	.43	.47	2.02	.49	2.000	.125	2.000	.125	.34	49.3
3 X .55	5.43	.98	2.70	.53	.50	2.75	.55	2.500	.125	2.000	.125	.41	47.3
3 X .72	7.46	1.22	3.94	.64	.53	3.22	.62	3.000	.125	2.000	.125	.41	45.8
3 X .72	6.12	1.15	3.15	.57	.51	2.74	.62	2.500	.125	2.500	.125	.41	61.7
3 X .85	8.31	1.43	4.58	.69	.59	3.20	.68	3.000	.125	2.500	.125	.47	59.5
4 X .87	10.74	1.72	6.30	.80	.59	3.66	.74	3.500	.125	2.500	.125	.53	57.9
4 X .94	13.38	2.03	8.39	.92	.63	4.12	.80	4.000	.125	2.500	.125	.59	56.6
5 X 1.02	16.19	2.37	10.84	1.03	.67	4.58	.87	4.500	.125	2.500	.125	.66	55.6
5 X 1.09	19.16	2.72	13.70	1.17	.72	5.03	.93	5.000	.125	2.500	.125	.72	54.0
4 X 1.13	15.84	2.70	10.97	1.05	.69	4.06	.97	4.000	.125	3.000	.160	.59	70.1
5 X 1.19	22.25	3.09	16.97	1.30	.76	5.49	.99	5.500	.125	2.500	.125	.78	53.7
5 X 1.21	18.92	3.12	14.05	1.18	.74	4.91	1.03	4.500	.125	3.000	.160	.66	65.7
5 X 1.28	22.13	3.25	17.59	1.32	.79	4.96	1.09	5.000	.125	3.000	.160	.72	67.5
5 X 1.35	25.44	4.10	21.01	1.40	.85	5.40	1.15	5.500	.125	3.000	.160	.78	60.5
4 X 1.60	19.91	4.28	16.75	1.27	.84	3.91	1.30	4.500	.125	4.000	.220	.59	93.7
5 X 1.67	25.42	4.69	21.24	1.43	.91	4.34	1.42	4.500	.125	4.000	.220	.66	98.4
5 X 1.57	23.40	4.68	20.25	1.05	.96	5.79	1.43	6.000	.160	3.000	.160	1.08	65.5
5 X 1.74	27.01	5.51	26.33	1.28	.97	4.78	1.48	5.000	.125	4.000	.220	.72	94.5
7 X 1.77	32.89	5.44	33.83	1.79	1.33	6.22	1.51	6.500	.160	3.000	.160	1.16	64.0
5 X 1.82	30.56	6.16	32.03	1.74	1.05	5.20	1.35	5.500	.125	4.000	.220	.78	93.0
7 X 1.86	30.43	6.02	40.93	1.94	1.10	6.65	1.59	7.000	.160	3.000	.160	1.24	63.8
5 X 1.98	32.09	5.96	33.92	1.79	1.36	5.69	1.51	6.000	.160	3.500	.190	1.08	78.4
7 X 1.98	35.71	6.66	44.39	1.94	1.23	6.12	1.69	6.500	.160	3.500	.190	1.16	77.4
7 X 2.37	39.37	7.27	47.56	2.13	1.21	6.54	1.77	7.000	.160	3.500	.190	1.24	70.4
5 X 2.13	34.55	7.20	46.24	1.93	1.16	5.59	1.62	6.000	.160	4.000	.220	1.08	91.0
7 X 2.22	38.29	7.95	47.72	2.09	1.25	6.00	1.70	6.500	.160	4.000	.220	1.16	90.4
7 X 2.32	42.06	8.72	55.37	2.26	1.33	6.42	1.98	7.000	.160	4.000	.220	1.24	89.3
5 X 2.56	37.73	9.36	50.83	2.13	1.34	5.41	2.18	6.000	.160	5.000	.250	1.38	113.0
7 X 2.65	41.63	10.28	59.79	2.30	1.44	5.81	2.20	6.500	.160	5.000	.250	1.16	117.3
7 X 2.75	45.20	11.23	69.82	2.48	1.53	6.22	2.34	7.000	.160	5.000	.250	1.24	115.8
8 X 3.10	49.52	12.08	83.29	2.67	1.68	6.57	2.54	7.500	.190	5.000	.250	1.37	114.5
5 X 3.21	53.46	13.74	95.82	2.85	1.79	6.96	2.74	8.000	.190	5.000	.250	1.66	113.3
5 X 3.28	41.14	12.93	88.49	2.37	1.61	5.14	2.80	6.000	.160	5.000	.313	1.08	148.0
7 X 3.38	45.23	14.15	78.13	2.56	1.73	5.52	2.88	6.500	.160	5.000	.313	1.16	145.6
7 X 3.47	49.33	15.39	90.90	2.76	1.84	5.91	2.96	7.000	.160	6.000	.313	1.24	143.5
6 X 3.82	53.70	17.10	106.87	2.95	2.00	6.25	3.26	7.500	.190	5.000	.313	1.57	141.8
6 X 3.84	57.51	18.45	122.23	3.15	2.13	6.62	3.35	8.000	.190	5.000	.313	1.66	140.2
9 X 4.34	61.59	20.40	141.74	3.34	2.30	6.95	3.70	8.500	.220	5.000	.313	2.04	139.7
9 X 4.77	65.72	21.80	159.95	3.53	2.43	7.32	3.81	9.000	.220	5.000	.313	2.15	137.4
10 X 4.80	69.86	23.30	175.43	3.73	2.57	7.68	3.92	9.500	.220	5.000	.313	2.26	136.2
9 X 4.76	63.21	23.19	156.93	3.47	2.40	6.77	4.06	9.000	.220	6.000	.375	2.64	137.7
9 X 4.69	67.42	24.82	176.89	3.67	2.62	7.13	4.17	9.500	.220	6.000	.375	2.20	137.4
10 X 5.02	71.03	26.40	190.19	3.86	2.77	7.48	4.28	9.500	.220	7.500	.375	2.26	136.2
10 X 5.42	65.44	27.76	180.27	3.64	2.75	6.50	4.62	8.500	.220	7.500	.375	2.04	180.4
10 X 5.00	72.84	28.92	225.06	4.00	2.97	7.78	4.68	10.000	.250	5.000	.375	2.69	135.0
11 X 5.55	69.75	29.05	202.86	3.84	2.91	6.84	4.73	9.000	.220	7.500	.375	2.15	173.5
11 X 5.64	60.36	30.71	249.73	4.25	3.12	8.13	4.81	10.500	.250	6.000	.375	2.81	134.3
10 X 5.68	74.06	31.58	220.91	4.05	3.06	7.19	4.84	9.500	.220	7.500	.375	2.26	175.6
11 X 5.79	64.32	32.24	272.85	4.45	3.27	8.48	4.93	11.000	.250	6.000	.375	2.94	132.9

12.0 IN. EFFECTIVE WIDTH
 .750 IN. PLATE (AREA= 9.00 SQ. IN.)

NO.	J	X	LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	U	BEAM DIMENSIONS	TF	SHEAR AREA	MAX. SPAN
												TW	WF		
10	X	5.92	77.54	32.17	244.24	4.17	3.16	7.59	5.35	10.000	.250	5.000	.438	2.09	135.0
11	X	6.17	81.55	34.13	270.78	4.37	3.32	7.93	5.17	10.500	.250	6.000	.430	2.81	134.0
10	X	6.16	76.40	34.25	250.22	4.24	3.27	7.88	5.25	10.500	.250	7.500	.375	2.69	175.2
11	X	6.21	85.90	36.12	290.04	4.57	3.48	8.27	5.30	11.000	.250	5.000	.438	2.94	132.9
11	X	6.30	82.75	36.30	265.83	4.44	3.43	7.82	5.37	10.500	.250	7.500	.375	2.81	173.8
11	X	6.35	87.10	38.38	313.02	4.65	3.59	8.10	5.50	11.000	.250	7.500	.375	2.94	172.4
12	X	7.36	94.97	42.29	372.95	4.94	3.93	8.82	5.29	12.000	.313	5.000	.438	3.99	131.0
13	X	7.56	99.26	44.55	407.41	5.14	4.10	9.15	6.45	12.500	.313	6.000	.430	4.15	130.1
12	X	7.52	95.11	44.75	369.36	5.01	4.35	8.70	6.49	12.500	.313	7.500	.375	3.99	169.9
13	X	7.90	100.55	47.10	424.97	5.21	4.23	9.02	6.52	12.500	.313	7.500	.375	4.15	168.8
13	X	7.98	100.91	48.41	433.34	5.24	4.30	8.95	6.60	12.500	.313	8.000	.500	4.15	130.1
13	X	7.99	102.00	49.48	462.42	5.41	4.40	9.35	6.81	13.000	.313	7.500	.375	4.30	167.7
13	X	8.16	105.29	50.66	471.53	5.44	4.48	9.27	6.95	13.000	.313	5.000	.500	4.30	123.2
14	X	8.17	109.46	51.90	501.68	5.61	4.58	9.67	6.96	13.500	.313	7.500	.375	4.46	166.7
14	X	8.35	109.79	53.54	511.26	5.63	4.66	9.59	7.11	13.500	.313	8.000	.500	4.46	128.4
12	X	8.41	96.72	51.39	434.21	5.18	4.40	8.35	7.16	12.500	.313	8.000	.438	3.99	182.2
13	X	8.59	103.27	54.04	473.40	5.39	4.58	8.07	7.32	12.500	.313	8.000	.438	4.15	182.0
13	X	8.78	107.84	57.32	514.00	5.59	4.77	8.93	7.48	13.000	.313	8.000	.438	4.46	180.8
14	X	8.96	112.42	59.53	557.07	5.79	4.90	9.29	7.53	13.500	.313	8.000	.438	4.46	173.7
12	X	8.97	100.10	56.98	462.95	5.27	4.62	8.13	7.64	12.000	.313	8.000	.500	3.99	183.2
15	X	9.15	104.72	59.83	544.53	5.48	4.82	8.43	7.80	12.500	.313	8.000	.500	4.15	182.0
13	X	9.34	109.36	62.73	588.11	5.69	5.01	8.74	7.95	13.000	.313	8.000	.500	4.30	180.8
14	X	9.52	114.02	65.65	633.69	5.89	5.21	9.04	8.11	13.500	.313	8.000	.500	4.46	179.7

12.0 IN. EFFECTIVE WIDTH
 .875 IN. PLATE (AREA=10.50 SQ. IN.)

NON. 3 X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							U	W	TF		
2 X .50	2.17	.58	1.08	.31	.50	1.08	1.500	.125	.125	.30	53.2
2 X .58	3.55	.78	1.85	.41	.52	2.35	2.000	.125	.125	.36	49.3
3 X .65	5.23	1.01	2.86	.51	.55	2.83	2.500	.125	.125	.42	47.3
3 X .72	7.23	1.26	4.15	.61	.57	3.30	3.000	.125	.125	.48	42.8
3 X .72	5.94	1.19	3.33	.55	.56	2.81	2.500	.125	.125	.42	61.7
3 X .80	8.11	1.40	4.80	.60	.59	3.28	3.000	.125	.125	.48	59.5
4 X .87	10.56	1.76	6.60	.77	.63	3.75	3.500	.125	.125	.55	57.9
4 X .94	13.26	2.08	8.76	.88	.66	4.21	4.000	.125	.125	.61	56.6
5 X 1.02	16.14	2.42	11.30	1.00	.70	4.68	4.500	.125	.125	.67	55.6
5 X 1.09	19.30	2.77	14.24	1.12	.74	5.14	5.000	.125	.125	.73	54.6
4 X 1.13	15.95	2.70	11.47	1.00	.72	4.16	4.000	.125	.160	.61	70.1
5 X 1.16	22.00	3.15	17.02	1.24	.78	5.59	5.500	.125	.125	.80	53.7
5 X 1.21	19.21	3.18	14.65	1.13	.76	4.61	5.000	.125	.160	.67	68.7
5 X 1.26	22.03	3.61	18.30	1.26	.81	5.07	5.000	.125	.160	.73	67.5
5 X 1.35	26.20	4.37	22.45	1.39	.86	5.52	5.500	.125	.160	.80	66.5
4 X 1.60	20.43	4.57	17.57	1.22	.85	4.82	4.000	.125	.220	.61	96.7
5 X 1.67	24.63	4.98	22.22	1.37	.91	4.47	4.500	.125	.220	.67	98.4
5 X 1.67	35.70	4.96	29.37	1.57	.96	5.92	5.000	.160	.160	1.10	85.5
5 X 1.74	28.35	5.51	27.55	1.51	.97	4.91	5.000	.125	.220	.73	94.5
5 X 1.77	34.52	5.53	35.14	1.71	1.02	6.36	5.500	.160	.160	1.18	64.6
5 X 1.82	32.37	6.25	33.41	1.67	1.03	5.34	5.500	.160	.220	.80	93.0
7 X 1.36	38.49	6.12	41.50	1.85	1.08	6.80	7.000	.160	.190	1.26	83.8
5 X 1.88	33.00	6.06	35.32	1.71	1.04	5.83	6.000	.160	.190	1.10	78.4
7 X 1.90	37.09	6.71	42.02	1.80	1.11	6.27	6.500	.160	.190	1.18	70.4
7 X 2.07	41.98	7.38	49.44	2.01	1.18	6.70	7.000	.160	.190	1.26	70.4
5 X 2.13	36.01	7.32	41.97	1.85	1.14	5.73	6.000	.160	.220	1.10	91.6
7 X 2.22	41.11	8.07	49.74	2.00	1.21	6.16	7.000	.160	.220	1.18	90.4
7 X 2.32	45.25	8.85	58.28	2.10	1.29	6.59	7.500	.160	.220	1.26	89.3
5 X 2.30	40.74	9.51	53.00	2.04	1.34	5.57	6.000	.160	.250	1.10	113.0
7 X 2.65	45.15	10.44	62.52	2.21	1.38	5.99	6.500	.160	.250	1.18	117.3
7 X 2.75	49.59	11.59	72.94	2.38	1.47	6.40	7.000	.160	.250	1.26	115.8
5 X 3.16	54.17	12.07	67.89	2.57	1.51	6.77	7.500	.190	.250	1.59	114.5
5 X 3.21	58.06	13.93	79.93	2.75	1.70	7.17	8.000	.190	.250	1.69	113.3
5 X 3.28	45.10	13.13	69.89	2.29	1.55	5.33	6.000	.160	.313	1.10	146.0
7 X 3.38	49.74	14.55	82.15	2.48	1.65	5.72	6.500	.160	.313	1.18	145.6
7 X 3.47	54.41	15.60	95.49	2.60	1.76	6.12	7.000	.160	.313	1.26	143.5
5 X 3.44	43.70	16.71	126.39	3.04	2.11	6.86	7.500	.190	.313	1.59	141.8
5 X 4.34	68.40	20.70	146.98	3.24	2.18	7.20	8.000	.220	.313	1.69	140.2
5 X 4.47	73.16	22.18	166.07	3.43	2.30	7.58	9.000	.220	.313	2.06	137.4
10 X 4.50	77.91	23.89	188.46	3.62	2.42	7.96	9.500	.220	.313	2.26	136.2
5 X 4.76	70.53	23.53	162.45	3.37	2.35	7.03	8.500	.220	.375	2.06	136.7
5 X 4.89	75.34	25.16	188.36	3.56	2.47	7.41	9.000	.220	.375	2.17	137.4
5 X 5.02	80.15	26.80	203.73	3.76	2.60	7.77	9.500	.220	.375	2.26	136.2
5 X 5.42	73.37	28.26	196.72	3.29	2.60	6.78	7.500	.220	.375	2.06	180.4
10 X 5.50	64.94	29.35	237.22	3.95	2.79	6.68	10.000	.250	.375	2.72	135.0
5 X 5.22	78.29	30.37	214.55	3.75	2.74	7.13	9.000	.250	.375	2.17	178.5
11 X 5.64	69.73	31.17	263.17	4.15	2.93	6.44	10.500	.250	.375	2.84	134.0
10 X 5.68	83.22	32.02	239.89	3.95	2.68	7.49	9.500	.250	.375	2.26	176.8
11 X 5.79	94.02	33.62	290.66	4.34	3.07	6.80	11.000	.250	.375	2.97	132.9

12.3 IN. EFFECTIVE WIDTH
.875 IN. PLATE (AREA=10.51 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	TF		
10 X 2.32	86.83	32.02	228.03	4.07	2.97	7.90	5.02	10.000	.250	5.000	.438
11 X 6.07	91.75	34.84	266.01	4.27	3.12	8.26	5.17	10.500	.250	5.000	.438
12 X 6.10	88.13	34.75	271.03	4.15	3.18	7.80	5.25	10.000	.250	7.500	.375
11 X 6.21	90.87	36.95	312.06	4.47	3.26	8.61	5.30	11.000	.250	5.000	.438
11 X 6.30	93.09	36.83	308.15	4.35	3.22	8.15	5.37	10.500	.250	7.500	.375
11 X 6.45	96.05	38.94	336.94	4.55	3.38	8.50	5.50	11.000	.250	7.500	.375
12 X 7.38	130.66	42.99	394.49	4.85	3.70	9.18	6.29	12.000	.313	6.000	.438
13 X 7.50	111.04	45.28	432.89	5.04	3.86	9.22	5.42	12.500	.313	5.000	.438
12 X 7.62	118.14	45.48	412.18	4.93	3.81	9.06	5.49	12.000	.313	7.500	.375
13 X 7.80	113.17	47.86	449.90	5.12	3.98	9.40	6.65	12.500	.313	7.500	.375
13 X 7.93	113.22	49.21	459.14	5.12	4.04	9.33	5.80	12.500	.313	5.000	.500
13 X 7.99	113.21	50.29	489.50	5.32	4.14	9.73	6.81	13.000	.313	7.500	.375
13 X 8.16	116.80	51.70	499.55	5.35	4.21	9.88	6.95	13.000	.313	6.000	.500
14 X 8.17	123.20	52.75	531.92	5.51	4.31	10.07	6.96	13.500	.313	7.500	.375
14 X 8.35	123.88	54.23	541.90	5.55	4.38	9.99	7.11	13.500	.313	5.000	.500
12 X 8.41	111.32	52.83	461.28	5.11	4.14	8.73	7.10	12.000	.313	8.000	.438
13 X 8.59	140.47	55.52	502.87	5.31	4.32	9.06	7.32	12.500	.313	8.000	.438
13 X 8.75	121.84	58.25	540.48	5.51	4.49	9.38	7.48	13.000	.313	8.000	.438
14 X 8.90	126.82	51.01	592.14	5.71	4.07	9.71	7.63	13.500	.313	8.000	.438
12 X 8.97	113.82	57.90	492.43	5.21	4.36	8.51	7.64	12.000	.313	9.000	.500
13 X 9.15	116.25	50.80	537.08	5.42	4.54	8.83	7.80	12.500	.313	8.000	.500
13 X 9.34	123.50	53.74	583.34	5.82	4.72	9.15	7.95	13.000	.313	8.000	.500
14 X 9.52	120.70	50.72	531.73	5.83	4.91	9.47	8.11	13.500	.313	9.000	.500

12.0 IN. EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=12.00'30. IN.)

NUM.	3 X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	U	BEAM DIMENSIONS	TF	SHEAR AREA	MAX. SPAN
										IN			
2	X .50	2.11	.60	1.17	.31	.56	1.94	.43	1.500	.125	.125	.31	53.2
2	X .39	3.42	.91	1.97	.43	.28	2.42	.49	2.000	.125	.125	.38	49.3
3	X .65	5.05	1.04	3.02	.59	.00	2.90	.55	2.500	.125	.125	.44	45.8
3	X .72	5.75	1.22	3.52	.63	.01	2.89	.62	3.000	.125	.125	.50	41.7
3	X .80	7.38	1.50	5.04	.83	.04	3.30	.68	3.500	.125	.125	.56	37.9
4	X .87	10.31	1.80	6.90	.74	.07	3.83	.74	4.000	.125	.125	.63	30.6
4	X .94	13.32	2.12	9.12	.84	.70	4.30	.80	4.500	.125	.125	.69	25.6
5	X 1.02	15.98	2.46	11.73	.96	.73	4.77	.87	5.000	.125	.125	.75	21.1
5	X 1.09	19.17	2.82	14.76	1.07	.77	5.23	.93	5.500	.125	.125	.81	17.4
6	X 1.13	22.06	3.21	17.95	.95	.72	4.25	.97	6.000	.125	.125	.89	14.1
6	X 1.16	22.57	3.20	18.23	1.10	.81	5.09	.99	6.500	.125	.125	.91	11.7
7	X 1.21	19.21	3.23	15.22	1.08	.79	4.71	1.03	7.000	.125	.125	.95	9.7
7	X 1.24	22.76	3.57	18.98	1.21	.83	5.17	1.09	7.500	.125	.125	.99	8.5
8	X 1.35	26.50	4.13	23.25	1.35	.88	5.62	1.15	8.000	.125	.125	.101	7.5
8	X 1.50	21.00	4.45	18.35	1.17	.87	4.13	1.30	8.500	.125	.125	.103	6.7
9	X 1.57	25.00	5.00	23.15	1.31	.83	4.27	1.43	9.000	.125	.125	.105	6.4
9	X 1.64	31.44	5.34	30.43	1.51	.87	6.03	1.48	9.500	.125	.125	.112	6.5
10	X 1.74	29.17	5.69	26.59	1.40	.98	5.02	1.51	10.000	.125	.125	.117	6.9
10	X 1.77	32.20	5.91	30.37	1.64	1.02	9.48	1.51	10.500	.125	.125	.120	6.6
11	X 1.82	33.48	6.35	34.68	1.60	1.04	9.48	1.55	11.000	.125	.125	.123	6.0
11	X 1.86	39.84	6.21	42.97	1.78	1.08	9.92	1.59	11.500	.125	.125	.126	6.3
12	X 1.98	35.00	6.15	38.02	1.84	1.05	9.95	1.61	12.000	.125	.125	.128	7.3
12	X 2.07	39.37	6.81	43.53	1.78	1.11	6.39	1.69	12.500	.125	.125	.130	7.4
13	X 2.07	43.83	7.49	51.17	1.93	1.17	6.83	1.77	13.000	.125	.125	.132	7.6
13	X 2.13	35.71	7.43	43.53	1.78	1.13	5.87	1.82	13.500	.125	.125	.134	9.1
14	X 2.22	42.98	8.19	51.59	1.93	1.20	6.30	1.90	14.000	.125	.125	.136	9.3
14	X 2.32	47.04	8.97	60.40	2.08	1.27	6.73	1.98	14.500	.125	.125	.138	8.9
15	X 2.30	43.04	9.02	55.10	1.97	1.28	5.72	2.18	15.000	.125	.125	.140	11.7
15	X 2.65	47.38	10.58	65.60	2.13	1.36	8.14	2.26	15.500	.125	.125	.142	11.3
16	X 3.10	52.79	11.54	75.77	2.31	1.44	6.56	2.34	16.000	.125	.125	.144	11.5
16	X 3.21	57.97	13.54	90.51	2.49	1.56	6.94	2.54	16.500	.125	.125	.146	11.3
17	X 3.21	62.90	14.12	103.81	2.65	1.65	7.35	2.74	17.000	.125	.125	.148	11.3
18	X 3.28	40.55	13.31	73.07	2.22	1.51	5.49	2.86	17.500	.125	.125	.150	11.3
18	X 3.30	53.49	14.25	82.78	2.40	1.60	5.90	2.88	18.000	.125	.125	.152	11.3
19	X 3.37	58.00	15.81	99.62	2.58	1.70	6.30	2.96	18.500	.125	.125	.154	11.3
20	X 3.32	63.94	17.56	117.21	2.77	1.83	6.67	3.20	19.000	.125	.125	.156	11.3
21	X 3.34	69.19	18.55	133.89	2.92	1.94	7.06	3.35	19.500	.125	.125	.158	11.3
22	X 4.34	74.49	20.97	155.45	3.15	2.09	7.44	3.70	20.000	.125	.125	.160	11.3
23	X 4.47	79.77	22.47	172.30	3.33	2.20	7.80	3.81	20.500	.125	.125	.162	11.3
24	X 4.56	85.07	24.00	195.52	3.51	2.31	8.19	3.92	21.000	.125	.125	.164	11.3
25	X 4.70	77.04	23.84	172.95	3.47	2.24	7.20	4.00	21.500	.125	.125	.166	11.3
26	X 4.89	82.43	25.51	194.70	3.60	2.36	7.64	4.17	22.000	.125	.125	.168	11.3
27	X 5.02	87.82	27.00	218.38	3.75	2.48	8.02	4.28	22.500	.125	.125	.170	11.3
28	X 5.22	88.57	28.52	240.10	3.86	2.48	7.02	4.62	23.000	.125	.125	.172	11.3
29	X 5.30	93.22	29.74	264.02	3.97	2.61	7.39	4.58	23.500	.125	.125	.174	11.3
30	X 5.35	98.00	30.40	284.95	4.05	2.79	7.71	4.81	24.000	.125	.125	.176	11.3
31	X 5.08	98.04	31.58	275.09	4.05	2.79	7.71	4.81	24.500	.125	.125	.178	11.3
32	X 5.08	91.53	32.42	251.41	3.80	2.74	7.70	4.84	25.000	.125	.125	.180	11.3
33	X 5.79	104.07	33.45	303.70	4.24	2.92	9.08	4.93	25.500	.125	.125	.182	11.3

12.0 IN. EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=12.0J SQ. IN.)

NOM. J X LB/FT	ZFL	ZFL	R	YF	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
						AREA	U	TF		
10 X 5.32	92.54	33.08	3.98	8.17	2.33	9.05	10.000	.250	5.000	.438
11 X 6.37	101.05	35.09	4.18	8.54	2.36	9.17	10.500	.250	5.000	.438
12 X 7.42	109.56	37.13	4.37	8.90	2.39	9.29	11.000	.250	5.000	.438
13 X 8.47	118.07	39.16	4.56	9.26	2.42	9.41	11.500	.250	5.000	.438
14 X 9.52	126.58	41.19	4.75	9.61	2.45	9.53	12.000	.250	5.000	.438
15 X 10.57	135.09	43.22	4.94	9.96	2.48	9.65	12.500	.250	5.000	.438
16 X 11.62	143.60	45.25	5.13	10.31	2.51	9.77	13.000	.250	5.000	.438
17 X 12.67	152.11	47.28	5.32	10.66	2.54	9.89	13.500	.250	5.000	.438
18 X 13.72	160.62	49.31	5.51	11.01	2.57	10.01	14.000	.250	5.000	.438
19 X 14.77	169.13	51.34	5.70	11.36	2.60	10.13	14.500	.250	5.000	.438
20 X 15.82	177.64	53.37	5.89	11.71	2.63	10.25	15.000	.250	5.000	.438
21 X 16.87	186.15	55.40	6.08	12.06	2.66	10.37	15.500	.250	5.000	.438
22 X 17.92	194.66	57.43	6.27	12.41	2.69	10.49	16.000	.250	5.000	.438
23 X 18.97	203.17	59.46	6.46	12.76	2.72	10.61	16.500	.250	5.000	.438
24 X 20.02	211.68	61.49	6.65	13.11	2.75	10.73	17.000	.250	5.000	.438
25 X 21.07	220.19	63.52	6.84	13.46	2.78	10.85	17.500	.250	5.000	.438
26 X 22.12	228.70	65.55	7.03	13.81	2.81	10.97	18.000	.250	5.000	.438
27 X 23.17	237.21	67.58	7.22	14.16	2.84	11.09	18.500	.250	5.000	.438
28 X 24.22	245.72	69.61	7.41	14.51	2.87	11.21	19.000	.250	5.000	.438
29 X 25.27	254.23	71.64	7.60	14.86	2.90	11.33	19.500	.250	5.000	.438
30 X 26.32	262.74	73.67	7.79	15.21	2.93	11.45	20.000	.250	5.000	.438
31 X 27.37	271.25	75.70	7.98	15.56	2.96	11.57	20.500	.250	5.000	.438
32 X 28.42	279.76	77.73	8.17	15.91	2.99	11.69	21.000	.250	5.000	.438
33 X 29.47	288.27	79.76	8.36	16.26	3.02	11.81	21.500	.250	5.000	.438
34 X 30.52	296.78	81.79	8.55	16.61	3.05	11.93	22.000	.250	5.000	.438
35 X 31.57	305.29	83.82	8.74	16.96	3.08	12.05	22.500	.250	5.000	.438
36 X 32.62	313.80	85.85	8.93	17.31	3.11	12.17	23.000	.250	5.000	.438
37 X 33.67	322.31	87.88	9.12	17.66	3.14	12.29	23.500	.250	5.000	.438
38 X 34.72	330.82	89.91	9.31	18.01	3.17	12.41	24.000	.250	5.000	.438
39 X 35.77	339.33	91.94	9.50	18.36	3.20	12.53	24.500	.250	5.000	.438
40 X 36.82	347.84	93.97	9.69	18.71	3.23	12.65	25.000	.250	5.000	.438
41 X 37.87	356.35	96.00	9.88	19.06	3.26	12.77	25.500	.250	5.000	.438
42 X 38.92	364.86	98.03	10.07	19.41	3.29	12.89	26.000	.250	5.000	.438
43 X 39.97	373.37	100.06	10.26	19.76	3.32	13.01	26.500	.250	5.000	.438
44 X 41.02	381.88	102.09	10.45	20.11	3.35	13.13	27.000	.250	5.000	.438
45 X 42.07	390.39	104.12	10.64	20.46	3.38	13.25	27.500	.250	5.000	.438
46 X 43.12	398.90	106.15	10.83	20.81	3.41	13.37	28.000	.250	5.000	.438
47 X 44.17	407.41	108.18	11.02	21.16	3.44	13.49	28.500	.250	5.000	.438
48 X 45.22	415.92	110.21	11.21	21.51	3.47	13.61	29.000	.250	5.000	.438
49 X 46.27	424.43	112.24	11.40	21.86	3.50	13.73	29.500	.250	5.000	.438
50 X 47.32	432.94	114.27	11.59	22.21	3.53	13.85	30.000	.250	5.000	.438
51 X 48.37	441.45	116.30	11.78	22.56	3.56	13.97	30.500	.250	5.000	.438
52 X 49.42	450.00	118.33	11.97	22.91	3.59	14.09	31.000	.250	5.000	.438
53 X 50.47	458.51	120.36	12.16	23.26	3.62	14.21	31.500	.250	5.000	.438
54 X 51.52	467.02	122.39	12.35	23.61	3.65	14.33	32.000	.250	5.000	.438
55 X 52.57	475.53	124.42	12.54	23.96	3.68	14.45	32.500	.250	5.000	.438
56 X 53.62	484.04	126.45	12.73	24.31	3.71	14.57	33.000	.250	5.000	.438
57 X 54.67	492.55	128.48	12.92	24.66	3.74	14.69	33.500	.250	5.000	.438
58 X 55.72	501.06	130.51	13.11	25.01	3.77	14.81	34.000	.250	5.000	.438
59 X 56.77	509.57	132.54	13.30	25.36	3.80	14.93	34.500	.250	5.000	.438
60 X 57.82	518.08	134.57	13.49	25.71	3.83	15.05	35.000	.250	5.000	.438
61 X 58.87	526.59	136.60	13.68	26.06	3.86	15.17	35.500	.250	5.000	.438
62 X 59.92	535.10	138.63	13.87	26.41	3.89	15.29	36.000	.250	5.000	.438
63 X 60.97	543.61	140.66	14.06	26.76	3.92	15.41	36.500	.250	5.000	.438
64 X 62.02	552.12	142.69	14.25	27.11	3.95	15.53	37.000	.250	5.000	.438
65 X 63.07	560.63	144.72	14.44	27.46	3.98	15.65	37.500	.250	5.000	.438
66 X 64.12	569.14	146.75	14.63	27.81	4.01	15.77	38.000	.250	5.000	.438
67 X 65.17	577.65	148.78	14.82	28.16	4.04	15.89	38.500	.250	5.000	.438
68 X 66.22	586.16	150.81	15.01	28.51	4.07	16.01	39.000	.250	5.000	.438
69 X 67.27	594.67	152.84	15.20	28.86	4.10	16.13	39.500	.250	5.000	.438
70 X 68.32	603.18	154.87	15.39	29.21	4.13	16.25	40.000	.250	5.000	.438
71 X 69.37	611.69	156.90	15.58	29.56	4.16	16.37	40.500	.250	5.000	.438
72 X 70.42	620.20	158.93	15.77	29.91	4.19	16.49	41.000	.250	5.000	.438
73 X 71.47	628.71	160.96	15.96	30.26	4.22	16.61	41.500	.250	5.000	.438
74 X 72.52	637.22	162.99	16.15	30.61	4.25	16.73	42.000	.250	5.000	.438
75 X 73.57	645.73	165.02	16.34	30.96	4.28	16.85	42.500	.250	5.000	.438
76 X 74.62	654.24	167.05	16.53	31.31	4.31	16.97	43.000	.250	5.000	.438
77 X 75.67	662.75	169.08	16.72	31.66	4.34	17.09	43.500	.250	5.000	.438
78 X 76.72	671.26	171.11	16.91	32.01	4.37	17.21	44.000	.250	5.000	.438
79 X 77.77	679.77	173.14	17.10	32.36	4.40	17.33	44.500	.250	5.000	.438
80 X 78.82	688.28	175.17	17.29	32.71	4.43	17.45	45.000	.250	5.000	.438
81 X 79.87	696.79	177.20	17.48	33.06	4.46	17.57	45.500	.250	5.000	.438
82 X 80.92	705.30	179.23	17.67	33.41	4.49	17.69	46.000	.250	5.000	.438
83 X 81.97	713.81	181.26	17.86	33.76	4.52	17.81	46.500	.250	5.000	.438
84 X 83.02	722.32	183.29	18.05	34.11	4.55	17.93	47.000	.250	5.000	.438
85 X 84.07	730.83	185.32	18.24	34.46	4.58	18.05	47.500	.250	5.000	.438
86 X 85.12	739.34	187.35	18.43	34.81	4.61	18.17	48.000	.250	5.000	.438
87 X 86.17	747.85	189.38	18.62	35.16	4.64	18.29	48.500	.250	5.000	.438
88 X 87.22	756.36	191.41	18.81	35.51	4.67	18.41	49.000	.250	5.000	.438
89 X 88.27	764.87	193.44	19.00	35.86	4.70	18.53	49.500	.250	5.000	.438
90 X 89.32	773.38	195.47	19.19	36.21	4.73	18.65	50.000	.250	5.000	.438
91 X 90.37	781.89	197.50	19.38	36.56	4.76	18.77	50.500	.250	5.000	.438
92 X 91.42	790.40	199.53	19.57	36.91	4.79	18.89	51.000	.250	5.000	.438
93 X 92.47	798.91	201.56	19.76	37.26	4.82	19.01	51.500	.250	5.000	.438
94 X 93.52	807.42	203.59	19.95	37.61	4.85	19.13	52.000	.250	5.000	.438
95 X 94.57	815.93	205.62	20.14	37.96	4.88	19.25	52.500	.250	5.000	.438
96 X 95.62	824.44	207.65	20.33	38.31	4.91	19.37	53.000	.250	5.000	.438
97 X 96.67	832.95	209.68	20.52	38.66	4.94	19.49	53.500	.250	5.000	.438
98 X 97.72	841.46	211.71	20.71	39.01	4.97	19.61	54.000	.250	5.000	.438
99 X 98.77	850.00	213.74	20.90	39.36	5.00	19.73	54.500	.250	5.000	.438
100 X 99.82	858.51	215.77	21.09	39.71	5.03	19.85	55.000	.250	5.000	.438
101 X 100.87	867.02	217.80	21.28	40.06	5.06	19.97	55.500	.250	5.000	.438
102 X 101.92	875.53	219.83	21.47	40.41	5.09	20.09	56.000	.250	5.000	.438
103 X 102.97	884.04	221.86	21.66	40.76	5.12	20.21	56.500	.250	5.000	.438
104 X 104.02	892.55	223.89	21.85	41.11	5.15	20.33	57.000	.250	5.000	.438
105 X 105.07	901.06	225.92	22.04	41.46	5.18	20.45	57.500	.250	5.000	.438
106 X 106.12	909.57	227.95	22.23	41.81	5.21	20.57	58.000	.250	5.000	.438
107 X 107.17	918.08	229.98	22.42	42.16	5.24	20.69	58.500	.250	5.000	.438
108 X 108.22	926.59	232.01	22.61	42.51	5.27	20.81	59.000	.250	5.000	.438
109 X 109.27	935.10	234.04	22.80	42.86	5.30	20.93	59.500	.250	5.000	.438
110 X 110.32	943.61	236.07	22.99	43.21	5.33	21.05	60.000	.250	5.000	.438
111 X 111.37	952.12	238.10	23.18	43.56	5.36	21.17	60.500	.250	5.000</	

TABLE 5

EFFECTIVE PLATING WIDTH = 14"

7/16" - 1" PLATE THICKNESSES

14.0 IN. EFFECTIVE WIDTH
 .438 IN. PLATE (AREA= 6.13 SQ. IN.)

NUM.	J X Lb/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	D	TF	W ²	TF	SHEAR AREA	MAX. SPAN
2	X .50	2.03	.49	.80	.35	.31	1.03	.43	1.500	.125	2.000	.125	.24	53.2
2	X .50	4.23	.69	1.45	.47	.34	2.10	.49	2.000	.125	2.000	.125	.30	49.3
3	X .65	6.00	.91	2.32	.59	.38	2.56	.55	3.000	.125	3.000	.125	.37	47.3
3	X .72	8.11	1.14	3.44	.71	.42	3.01	.62	3.000	.125	2.000	.125	.43	45.8
3	X .72	8.58	1.37	2.70	.63	.40	2.53	.62	2.500	.125	2.500	.125	.37	61.7
3	X .80	8.81	1.33	3.98	.76	.45	2.39	.68	3.000	.125	2.500	.125	.43	59.5
4	X .87	11.06	1.62	5.56	.90	.50	3.43	.74	3.500	.125	2.500	.125	.49	57.9
4	X .94	13.39	1.92	7.40	1.04	.56	3.38	.80	4.000	.125	2.500	.125	.55	56.6
5	X 1.02	15.78	2.25	9.72	1.18	.62	4.32	.87	4.500	.125	2.500	.125	.62	55.6
5	X 1.09	18.22	2.59	12.53	1.32	.68	4.76	.93	5.000	.125	2.500	.125	.68	54.0
6	X 1.13	20.10	2.76	15.73	1.47	.64	3.79	.97	4.000	.125	3.000	.160	.55	70.1
6	X 1.16	24.88	2.95	15.34	1.47	.74	5.20	.99	4.500	.125	2.500	.125	.74	53.7
5	X 1.21	17.62	2.97	12.54	1.32	.71	4.23	1.03	4.500	.125	3.000	.160	.62	69.7
5	X 1.24	20.17	3.39	15.76	1.43	.78	4.50	1.09	5.000	.125	3.000	.160	.68	67.5
6	X 1.35	22.74	3.83	19.46	1.64	.86	5.08	1.15	5.500	.125	3.000	.160	.74	65.5
6	X 1.40	14.68	4.07	14.68	1.40	.84	3.80	1.36	4.000	.125	4.000	.220	.55	98.7
5	X 1.57	23.28	4.07	18.73	1.58	.82	4.11	1.42	4.500	.125	4.000	.220	.62	96.4
9	X 1.67	25.40	4.00	25.36	1.83	1.00	5.44	1.43	6.000	.160	3.000	.160	1.03	65.5
5	X 1.74	23.00	5.28	23.35	1.75	1.32	4.42	1.48	5.000	.125	4.000	.220	.68	94.5
7	X 1.77	27.98	5.20	30.44	2.00	1.09	5.85	1.51	6.500	.160	3.000	.160	1.11	64.6
5	X 1.82	25.74	5.91	28.54	1.93	1.11	4.83	1.55	5.500	.125	4.000	.220	.74	93.9
6	X 1.86	30.50	5.77	36.09	2.16	1.18	5.26	1.59	7.000	.160	3.000	.160	1.19	63.8
6	X 1.98	27.31	5.75	30.32	1.93	1.12	5.32	1.51	6.000	.160	3.500	.190	1.03	78.4
7	X 2.07	32.32	6.58	42.09	2.33	1.32	5.72	1.69	8.500	.160	3.500	.190	1.11	76.4
6	X 2.13	28.40	6.91	35.77	2.12	1.26	5.18	1.77	7.000	.160	3.500	.190	1.19	76.4
7	X 2.22	31.13	7.63	42.53	2.30	1.37	5.57	1.82	8.000	.160	4.000	.220	1.03	91.6
7	X 2.32	33.85	8.38	49.37	2.48	1.48	5.96	1.90	8.500	.160	4.000	.220	1.11	90.4
6	X 2.50	30.10	8.99	44.50	2.32	1.40	4.96	1.98	7.000	.160	4.000	.220	1.19	89.3
7	X 2.65	32.93	9.89	52.75	2.51	1.50	5.34	2.18	6.000	.160	5.000	.250	1.03	119.3
8	X 3.10	38.51	10.81	61.73	2.70	1.73	5.71	2.26	6.500	.160	5.000	.250	1.11	117.3
8	X 3.21	38.51	12.19	73.48	2.90	1.91	6.03	2.34	7.000	.190	5.000	.250	1.19	115.8
6	X 3.21	41.33	13.21	84.47	3.09	2.04	6.39	2.04	7.500	.190	5.000	.250	1.51	114.5
5	X 3.24	31.77	12.42	57.47	2.54	1.81	4.93	2.74	8.000	.190	5.000	.250	1.60	113.3
7	X 3.38	34.71	13.61	67.82	2.74	1.95	4.88	2.80	8.000	.160	5.000	.313	1.03	145.3
7	X 3.47	37.65	14.82	79.10	2.95	2.10	5.34	2.86	7.000	.160	6.000	.313	1.11	145.6
8	X 3.62	40.37	15.45	92.92	3.15	2.29	5.65	2.96	7.500	.190	6.000	.313	1.19	145.5
8	X 3.94	43.22	17.70	106.43	3.35	2.45	5.99	3.35	8.000	.190	6.000	.313	1.51	141.8
9	X 4.34	40.48	19.60	123.23	3.54	2.55	6.29	3.70	8.500	.220	5.000	.313	1.60	140.2
9	X 4.47	49.45	21.02	159.21	3.74	2.81	6.62	3.81	9.000	.220	5.000	.313	1.97	138.7
10	X 4.60	52.43	22.40	156.26	3.94	2.98	6.96	3.92	9.500	.220	5.000	.313	2.08	137.4
9	X 4.76	47.34	22.29	135.43	3.65	2.86	6.03	4.10	8.500	.220	5.000	.375	2.19	136.2
9	X 4.89	50.38	23.07	152.63	3.85	3.13	6.40	4.17	9.000	.220	5.000	.375	2.08	137.4
10	X 5.02	53.42	25.47	171.40	4.00	3.21	6.73	4.28	9.500	.220	5.000	.375	2.19	136.2
9	X 5.42	48.56	26.68	153.91	3.78	3.17	5.77	4.62	8.500	.220	7.500	.375	1.97	160.4
10	X 5.50	56.58	27.70	194.36	4.24	3.44	7.30	4.68	10.000	.250	5.000	.375	2.01	135.0
9	X 5.55	51.67	26.52	173.44	4.10	3.36	6.06	4.73	9.000	.220	7.500	.375	2.08	178.5
11	X 5.64	59.66	29.48	215.81	4.44	3.62	7.32	4.81	10.500	.250	6.000	.375	2.73	134.0
10	X 5.68	54.79	30.30	194.23	4.21	3.54	6.39	4.84	10.500	.220	7.500	.375	2.19	176.8
11	X 5.79	62.76	31.23	230.53	4.64	3.80	7.64	4.93	11.000	.250	5.000	.375	2.86	132.9

0.438 IN. PLATE (AREA= 0.13 SQ. IN.)

75

NUM.		J X LB/FT		ZPL	ZFL	INERTIA	R	Y _P	YF	AREA	UEAM DIMENSIONS		WF	TF	SHEAR AREA	MAX SPAN
												U	TH			
2	X	.50	2.57	.84	.34	.33	1.67	.43	1.500	.125	2.000	.125	.25	53.2		
2	X	.58	4.18	1.50	.45	.36	2.14	.49	2.000	.125	2.000	.125	.31	49.3		
3	X	.55	6.16	2.40	.50	.40	2.60	.55	3.000	.125	2.000	.125	.38	47.3		
3	X	.72	8.18	3.55	.60	.43	3.07	.62	3.000	.125	2.000	.125	.44	45.8		
3	X	.72	6.72	2.60	.61	.42	2.56	.62	2.500	.125	2.500	.125	.38	61.7		
3	X	.80	8.96	4.11	.73	.46	3.04	.68	3.000	.125	2.500	.125	.44	59.5		
4	X	.87	11.86	5.73	.86	.50	3.50	.74	3.500	.125	2.500	.125	.50	57.9		
4	X	.94	13.60	7.08	.99	.55	3.95	.80	4.000	.125	2.500	.125	.56	56.6		
5	X	1.02	16.44	9.99	1.13	.61	4.39	.87	4.500	.125	2.500	.125	.63	55.6		
5	X	1.19	19.17	12.08	1.20	.66	4.84	.93	5.000	.125	2.500	.125	.69	54.6		
5	X	1.13	15.47	10.03	1.12	.63	3.87	.97	5.000	.125	3.000	.160	.50	70.1		
5	X	1.16	21.90	15.76	1.40	.72	5.20	.99	5.500	.125	2.500	.125	.75	53.7		
5	X	1.21	18.04	12.92	1.27	.69	4.31	1.03	5.000	.125	3.000	.160	.63	68.7		
5	X	1.23	21.47	16.25	1.42	.76	4.74	1.04	5.000	.125	3.000	.160	.69	67.5		
5	X	1.35	24.33	20.03	1.57	.87	5.18	1.15	5.500	.125	3.000	.160	.75	60.5		
5	X	1.50	18.85	15.22	1.35	.81	3.69	1.36	4.000	.125	4.000	.220	.56	98.7		
5	X	1.67	21.87	19.70	1.52	.89	4.11	1.42	4.000	.125	4.000	.220	.63	90.4		
5	X	1.57	27.41	26.15	1.76	.95	5.55	1.43	6.000	.160	3.000	.160	1.04	65.5		
5	X	1.74	24.92	24.16	1.69	.97	4.53	1.48	5.000	.125	4.000	.220	.69	94.5		
7	X	1.77	30.31	31.30	1.92	1.14	5.98	1.51	5.500	.160	3.000	.160	1.12	64.6		
7	X	1.82	27.36	29.51	1.86	1.05	4.95	1.55	5.500	.125	4.000	.220	.75	93.0		
7	X	1.80	33.22	37.20	2.08	1.12	6.38	1.59	7.000	.160	3.000	.160	1.20	70.4		
7	X	1.98	29.34	31.32	1.91	1.17	5.43	1.61	6.000	.160	3.500	.190	1.04	78.4		
7	X	2.22	32.32	37.38	2.07	1.16	5.84	1.69	6.500	.160	3.500	.190	1.12	77.4		
7	X	2.37	35.31	44.08	2.24	1.25	6.25	1.77	7.000	.160	3.500	.190	1.20	76.4		
5	X	2.13	31.03	37.03	2.05	1.19	5.31	1.82	5.500	.160	4.000	.220	1.04	91.6		
7	X	2.22	34.10	44.02	2.22	1.29	5.71	1.90	6.500	.160	4.000	.220	1.12	90.4		
7	X	2.32	37.17	51.71	2.40	1.39	6.11	1.96	7.000	.160	4.000	.220	1.20	89.3		
7	X	2.50	33.12	40.32	2.25	1.40	5.10	2.18	6.000	.160	5.000	.250	1.04	119.0		
7	X	2.65	36.30	54.82	2.43	1.51	5.49	2.26	6.500							

14.0 IN. EFFECTIVE WIDTH

.500 IN. PLATE (AREA= 7.00 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TW		
10 X 5.92	04.03	31.26	220.54	4.28	3.44	7.06	5.05	10.000	.250	5.000	.438
11 X 6.07	07.53	33.17	244.07	4.48	3.02	7.38	5.17	10.500	.250	5.000	.438
11 X 6.10	04.80	33.29	250.90	4.34	3.56	6.94	5.25	10.000	.250	7.500	.375
11 X 6.21	71.34	35.11	270.20	4.69	3.80	7.70	5.30	11.000	.250	5.000	.438
11 X 6.30	68.33	35.29	255.97	4.55	3.75	7.25	5.37	10.500	.250	7.500	.375
11 X 6.45	71.87	37.52	282.48	4.75	3.93	7.57	5.50	11.000	.250	7.500	.375
12 X 7.38	76.59	40.39	336.72	5.03	4.28	8.22	5.29	12.000	.313	6.000	.438
13 X 7.50	82.21	43.17	367.99	5.23	4.48	8.52	5.45	12.500	.313	6.000	.438
12 X 7.02	79.54	43.59	350.93	5.10	4.41	8.09	5.49	12.000	.313	7.500	.375
13 X 7.30	83.19	45.56	365.26	5.30	4.01	8.59	5.55	12.500	.313	7.500	.375
13 X 7.38	83.34	46.92	390.20	5.32	4.08	8.32	5.80	12.500	.313	6.000	.500
13 X 7.39	86.86	47.97	417.21	5.50	4.30	8.70	5.81	13.000	.313	7.500	.375
13 X 6.16	87.34	49.29	424.85	5.52	4.38	8.52	5.95	13.000	.313	6.000	.500
14 X 6.17	90.55	50.32	422.81	5.69	5.10	9.00	6.96	13.500	.313	7.500	.375
14 X 8.35	90.75	51.70	481.11	5.72	5.15	8.92	7.11	13.500	.313	5.000	.500
12 X 8.41	81.43	50.43	389.27	5.24	4.78	7.72	7.16	12.000	.313	8.000	.438
13 X 8.59	82.19	52.99	424.70	5.45	4.99	8.51	7.32	12.500	.313	8.000	.438
13 X 8.78	88.96	55.59	481.87	5.65	5.19	8.31	7.48	13.000	.313	8.000	.438
14 X 8.90	92.76	58.22	500.79	5.85	5.40	8.60	7.63	13.500	.313	8.000	.438
12 X 8.97	82.11	55.20	413.48	5.31	5.12	7.79	7.64	12.000	.313	8.000	.500
13 X 9.15	86.23	58.63	450.93	5.52	5.23	7.77	7.80	12.500	.313	8.000	.500
13 X 9.34	90.67	60.84	490.20	5.73	5.44	8.46	7.95	13.000	.313	8.000	.500
14 X 9.52	93.93	63.97	531.28	5.93	5.66	8.34	8.11	13.500	.313	8.000	.500

14.3 IN. EFFECTIVE WIDTH
 .625 IN. PLATE (AREA= 8.75 SQ. IN.)

NOM.		BEAM DIMENSIONS										SHEAR		MAX. SPAN
D	X LB/FT	ZPL	ZFL	INERTIA	R	YF	AREA	D	TH	WF	IF	AREA		
2	X .50	2.44	.53	.92	.32	.38	.43	1.500	.125	2.000	.125	.27	53.2	
2	X .58	4.00	.73	1.02	.42	.41	.49	2.000	.125	2.000	.125	.33	49.3	
3	X .65	5.89	.95	2.56	.52	.43	.55	2.500	.125	2.000	.125	.39	47.3	
3	X .72	6.07	1.19	3.77	.63	.47	.62	3.000	.125	2.000	.125	.45	45.8	
3	X .72	6.01	1.12	2.99	.56	.42	.52	2.500	.125	2.500	.125	.39	61.7	
3	X .80	8.36	1.39	4.36	.68	.43	.68	3.000	.125	2.500	.125	.45	59.5	
4	X .87	11.53	1.68	6.05	.80	.53	.74	3.500	.125	2.500	.125	.52	57.9	
4	X .94	14.30	1.99	8.09	.92	.57	.80	4.000	.125	2.500	.125	.58	56.6	
5	X 1.02	17.23	2.32	10.49	1.04	.61	.87	4.500	.125	2.500	.125	.64	55.6	
5	X 1.09	20.28	2.67	13.29	1.17	.66	.93	5.000	.125	2.500	.125	.70	54.6	
4	X 1.13	20.75	2.05	10.29	1.04	.63	.87	4.000	.125	3.000	.160	.58	70.1	
5	X 1.10	23.44	3.04	16.50	1.30	.70	.99	5.500	.125	2.500	.125	.77	53.7	
5	X 1.21	19.93	3.60	13.01	1.18	.68	1.03	4.200	.125	3.000	.160	.64	68.7	
5	X 1.28	23.20	3.79	17.66	1.32	.74	1.09	5.000	.125	3.000	.160	.70	67.5	
6	X 1.35	20.56	3.94	21.32	1.40	.79	1.15	5.500	.125	3.000	.160	.77	66.5	
4	X 1.50	20.69	4.21	16.17	1.20	.78	1.30	4.000	.125	4.000	.220	.56	98.7	
5	X 1.67	24.24	4.81	20.57	1.42	.82	1.42	4.500	.125	4.000	.220	.64	96.4	
5	X 1.74	30.43	4.91	27.51	1.64	.90	1.43	6.000	.160	3.000	.160	1.06	82.5	
5	X 1.74	27.05	5.43	25.57	1.58	.92	1.48	5.500	.125	4.000	.220	.70	94.5	
7	X 1.77	33.91	5.30	32.99	1.79	.97	1.51	6.500	.160	3.000	.160	1.14	84.6	
5	X 1.82	31.52	6.07	31.19	1.74	.99	1.59	5.500	.160	4.000	.220	1.22	93.0	
7	X 1.86	37.43	5.94	39.09	1.94	1.04	1.59	7.000	.160	3.000	.160	1.22	63.8	
5	X 1.86	32.99	5.87	33.84	1.79	1.00	1.61	6.000	.160	3.500	.190	1.06	78.4	
7	X 1.96	36.59	6.52	39.41	1.94	1.08	1.69	6.500	.160	3.500	.190	1.14	77.4	
7	X 2.07	40.22	7.18	40.45	2.10	1.16	1.77	7.000	.160	3.500	.190	1.22	76.4	
5	X 2.13	35.31	7.11	39.20	1.93	1.11	1.82	6.000	.160	4.000	.220	1.06	91.6	
7	X 2.22	39.02	7.85	46.56	2.09	1.19	1.90	6.500	.160	4.000	.220	1.14	90.4	
7	X 2.32	42.75	8.01	54.87	2.26	1.23	1.98	7.000	.160	4.000	.220	1.22	89.3	
5	X 2.35	34.25	8.24	43.32	2.12	1.29	2.18	6.000	.160	5.000	.250	1.06	119.0	
7	X 2.05	42.11	10.16	50.52	2.30	1.38	2.20	6.500	.160	5.000	.250	1.14	117.3	
7	X 2.75	45.90	11.10	68.19	2.40	1.48	2.34	7.000	.160	5.000	.250	1.22	115.8	
8	X 3.10	49.82	12.54	81.40	2.67	1.53	2.54	7.500	.190	5.000	.250	1.54	114.5	
8	X 3.21	53.76	13.59	93.24	2.82	1.74	2.74	8.000	.190	5.000	.250	1.64	113.3	
5	X 3.28	41.34	12.77	64.63	2.37	1.56	2.80	6.000	.160	5.000	.313	1.06	148.0	
7	X 3.38	49.37	13.98	70.16	2.50	1.68	2.88	6.500	.160	6.000	.313	1.14	145.0	
7	X 3.47	49.41	15.22	88.72	2.75	1.80	2.96	7.000	.160	5.000	.313	1.22	143.5	
8	X 3.82	55.37	16.92	104.59	2.95	1.36	3.26	7.500	.190	5.000	.313	1.54	141.8	
8	X 3.94	57.41	18.26	119.51	3.14	2.08	3.35	8.000	.190	5.000	.313	1.64	140.2	
9	X 4.34	61.38	20.19	138.09	3.34	2.26	3.70	8.500	.220	5.000	.313	2.01	138.7	
5	X 4.47	65.42	21.05	150.59	3.53	2.39	3.81	9.000	.220	5.000	.313	2.12	137.4	
10	X 4.60	69.47	23.14	175.76	3.72	2.53	3.92	9.500	.220	5.000	.313	2.23	136.2	
9	X 4.76	62.62	22.56	153.40	3.60	2.44	4.00	8.500	.220	5.000	.375	2.01	138.7	
9	X 4.89	66.97	24.59	173.10	3.86	2.56	4.17	9.000	.220	5.000	.375	2.12	137.4	
10	X 5.02	71.10	26.24	194.07	3.86	2.73	4.26	9.500	.220	5.000	.375	2.23	136.2	
9	X 5.42	64.59	27.49	170.19	3.63	2.72	4.52	8.500	.220	7.500	.375	2.01	180.4	
10	X 5.50	75.20	28.50	220.47	4.05	2.87	4.68	10.000	.250	5.000	.375	2.66	135.0	
9	X 5.55	63.11	29.38	190.41	3.84	2.87	4.73	9.000	.220	7.500	.375	2.12	176.5	
11	X 5.04	79.35	30.44	244.77	4.25	3.08	4.81	10.500	.220	6.000	.375	2.78	134.0	
10	X 5.58	73.33	31.30	222.09	4.04	3.03	4.94	9.500	.220	7.500	.375	2.23	176.8	
11	X 5.79	83.50	32.26	270.50	4.45	3.24	4.93	11.000	.250	5.000	.375	2.91	132.9	

0.01 IN. EFFECTIVE WIDTH

0.05 IN. PLATE (AREA= 8.75 SQ. IN.)

NUM. J X LE/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
							AREA	U	IM	W*		
10 X 5.92	76.58	31.88	239.18	4.16	3.12	7.50	5.62	10.000	.250	6.000	.438	135.0
11 X 6.17	86.79	33.84	265.31	4.37	3.28	7.84	5.17	10.500	.250	5.000	.438	134.0
11 X 6.16	77.58	33.94	250.88	4.23	3.23	7.39	5.25	10.000	.250	7.500	.375	175.2
11 X 6.21	85.02	35.82	292.96	4.57	3.45	8.18	5.30	11.000	.250	5.000	.438	132.9
11 X 6.30	81.83	35.39	278.07	4.44	3.40	7.73	5.37	10.500	.250	7.500	.375	173.0
11 X 6.45	86.09	38.88	300.81	4.84	3.50	8.08	5.20	11.000	.250	7.500	.375	172.4
12 X 7.36	93.74	41.34	305.80	4.53	3.30	8.72	5.25	12.000	.313	5.000	.438	131.0
13 X 7.58	93.05	44.18	339.74	5.13	4.38	9.35	0.45	12.500	.313	6.000	.438	130.1
12 X 7.62	94.95	47.38	361.79	5.30	4.02	8.80	0.49	12.000	.313	7.500	.375	169.9
13 X 7.30	99.27	48.71	418.93	5.20	4.20	8.43	5.65	12.500	.313	7.500	.375	168.8
13 X 7.35	99.50	48.02	425.08	5.23	4.27	8.85	5.80	12.500	.313	6.000	.500	133.1
13 X 7.39	103.83	49.09	433.83	5.40	4.30	9.25	0.81	13.000	.313	7.500	.375	167.7
13 X 5.16	103.85	50.45	402.71	5.43	4.45	9.17	5.95	13.000	.313	5.000	.500	129.2
14 X 8.17	108.00	51.49	482.52	5.60	4.50	9.58	6.30	13.500	.313	7.500	.375	166.7
14 X 8.35	108.29	52.92	502.15	5.83	4.84	9.49	7.11	13.500	.313	6.000	.500	126.4
12 X 8.21	97.37	51.27	425.62	5.17	4.37	8.25	7.16	12.000	.313	8.000	.438	163.2
13 X 8.58	101.83	54.21	404.30	5.37	4.56	8.57	7.32	12.500	.313	8.000	.438	162.0
13 X 3.78	100.31	50.87	504.82	5.58	4.75	8.38	7.48	13.000	.313	6.000	.438	160.8
14 X 8.90	113.80	59.28	547.20	5.78	4.44	9.19	7.83	13.500	.313	9.000	.438	179.7
12 X 8.37	98.06	58.52	453.86	5.20	4.00	8.03	7.54	12.000	.313	8.000	.500	163.2
13 X 9.15	103.19	59.36	494.61	5.47	4.79	8.33	7.90	12.500	.313	8.000	.500	162.0
13 X 9.34	117.74	62.24	537.22	5.67	4.99	8.84	7.95	13.000	.313	8.000	.500	160.8
14 X 9.52	112.30	65.16	582.42	5.88	5.19	8.94	8.11	13.500	.313	8.000	.500	179.7

14.0 IN. EFFECTIVE WIDTH
.750 IN. PLATE (AREA=10.50 SQ. IN.)

NUM. J X LB/FT	ZFL	ZFL	INERTIA	R	YP	YF	AREA	U	W	TF	SHEAR AREA	MAX. SPAN
2 X .50	2.32	.55	1.01	.30	.43	1.82	.43	1.500	.125	.125	.28	53.2
2 X .58	3.81	.76	1.74	.40	.48	2.29	.49	2.000	.125	.125	.34	49.3
3 X .65	5.60	.98	2.72	.50	.48	2.77	.55	2.500	.125	.125	.41	47.3
3 X .72	7.02	1.23	3.57	.60	.51	3.24	.62	3.000	.125	.125	.47	45.8
3 X .80	8.75	1.43	4.80	.75	.53	3.75	.66	3.500	.125	.125	.41	41.7
4 X .87	11.39	1.72	6.30	.84	.56	4.22	.68	4.000	.125	.125	.47	51.5
4 X .94	14.27	2.04	8.47	.97	.59	4.75	.74	4.500	.125	.125	.53	57.9
5 X 1.02	17.37	2.37	10.90	.98	.63	5.22	.81	5.000	.125	.125	.59	56.6
5 X 1.09	20.60	2.73	13.65	1.10	.67	5.68	.87	5.500	.125	.125	.66	55.6
4 X 1.13	17.05	2.71	11.10	.98	.65	5.10	.93	5.000	.125	.125	.72	54.6
5 X 1.16	24.10	3.10	17.17	1.22	.71	6.54	.97	5.500	.125	.125	.79	70.1
5 X 1.21	20.40	3.12	14.22	1.11	.69	5.56	.99	5.000	.125	.125	.78	53.7
5 X 1.28	24.07	3.50	17.82	1.24	.74	6.97	1.03	5.500	.125	.125	.66	65.7
6 X 1.35	27.79	4.01	21.90	1.37	.79	8.46	1.15	6.000	.125	.125	.72	67.5
4 X 1.50	21.76	4.29	17.03	1.23	.78	7.97	1.30	4.000	.125	.125	.78	65.5
5 X 1.67	25.73	4.89	20.70	1.35	.84	9.41	1.42	4.500	.125	.125	.66	98.4
5 X 1.74	32.35	5.53	26.70	1.55	.89	10.86	1.43	5.000	.125	.125	1.08	82.5
7 X 1.77	36.32	6.17	32.04	1.69	.90	12.30	1.51	5.500	.125	.125	.72	94.5
7 X 1.82	33.94	6.44	28.82	1.50	.95	10.79	1.59	6.000	.125	.125	1.16	64.6
7 X 1.88	40.30	7.04	40.72	1.84	1.01	13.24	1.65	7.000	.125	.125	.70	93.0
5 X 1.98	35.51	6.02	34.23	1.69	.97	11.78	1.77	7.500	.125	.125	1.24	63.8
7 X 2.07	43.02	7.30	40.47	1.84	1.14	14.23	1.82	8.000	.125	.125	1.08	78.4
5 X 2.13	36.43	7.23	41.00	1.83	1.17	12.70	1.90	8.500	.125	.125	1.15	77.4
7 X 2.22	42.71	7.98	48.73	1.90	1.14	15.15	1.98	9.000	.125	.125	1.24	76.4
7 X 2.32	47.93	8.75	57.17	2.02	1.22	17.60	2.06	9.500	.125	.125	1.08	91.6
5 X 2.50	42.25	9.39	51.67	2.02	1.23	15.05	2.18	10.000	.125	.125	1.16	90.4
7 X 2.05	40.73	10.32	61.26	2.13	1.31	17.50	2.26	10.500	.125	.125	1.24	119.0
7 X 2.75	51.24	11.27	71.59	2.30	1.40	20.00	2.34	11.000	.125	.125	1.10	117.3
5 X 3.10	55.82	12.74	85.20	2.55	1.53	22.45	2.44	11.500	.125	.125	1.24	115.6
5 X 3.21	60.36	13.80	90.28	2.72	1.63	24.90	2.54	12.000	.125	.125	1.57	114.5
5 X 3.28	46.43	12.97	68.44	2.47	1.47	20.00	2.74	12.500	.125	.125	1.00	113.3
7 X 3.38	51.13	14.20	80.20	2.62	1.58	22.45	2.88	13.000	.125	.125	1.08	140.0
7 X 3.47	55.85	15.45	93.77	2.84	1.68	24.90	2.96	13.500	.125	.125	1.16	145.6
5 X 3.52	50.53	17.16	110.41	2.83	1.62	27.35	3.06	14.000	.125	.125	1.24	143.5
5 X 3.54	55.27	16.24	126.33	3.02	1.74	29.80	3.15	14.500	.125	.125	1.57	141.5
5 X 4.34	69.95	20.51	165.05	3.40	2.22	34.75	3.35	15.000	.125	.125	1.00	140.2
4 X 4.77	74.09	21.19	185.09	3.59	2.34	37.20	3.41	15.500	.125	.125	1.00	136.7
10 X 4.50	79.44	23.62	202.90	3.55	2.27	42.15	3.52	16.000	.125	.125	2.15	137.4
9 X 4.70	71.92	24.97	183.70	3.54	2.39	44.60	3.61	16.500	.125	.125	2.26	136.2
9 X 5.34	100.75	31.59	260.09	3.93	2.80	52.10	4.02	17.000	.125	.125	2.15	137.4
9 X 5.42	74.02	27.92	167.93	3.53	2.52	47.05	4.17	17.500	.125	.125	2.26	130.2
15 X 5.50	86.37	29.13	234.14	3.93	2.71	54.55	4.28	18.000	.125	.125	2.64	140.4
9 X 5.50	79.57	29.83	211.54	3.73	2.66	52.00	4.35	18.500	.125	.125	2.69	135.5
11 X 5.64	81.22	31.77	259.91	4.12	2.85	59.45	4.73	19.000	.125	.125	2.15	178.5
11 X 5.68	84.52	31.77	260.09	3.93	2.80	56.90	4.81	19.500	.125	.125	2.81	134.0
11 X 5.79	90.07	32.78	287.21	4.31	2.99	64.35	4.93	20.000	.125	.125	2.26	176.8
												132.9

14.3 IN. EFFECTIVE WIDTH
 .750 IN. PLATE (AREA=10.50 SQ. IN.)

NUM. J X LD/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TW		
10 X 5.92	88.17	32.41	254.74	4.65	2.89	7.86	5.05	10.000	.250	6.000	.438
11 X 6.07	93.10	34.39	262.51	4.25	3.33	8.22	5.17	10.500	.250	6.000	.438
10 X 6.16	89.43	34.49	267.58	4.12	2.99	7.76	5.25	10.000	.250	7.500	.375
11 X 6.21	96.04	36.40	311.90	4.44	3.18	8.57	5.36	11.000	.250	6.000	.438
11 X 6.30	94.40	36.50	296.51	4.32	3.14	8.11	5.37	10.500	.250	7.500	.375
11 X 6.45	99.36	38.67	327.10	4.52	3.29	8.46	5.50	11.000	.250	7.500	.375
12 X 7.38	108.01	42.71	390.22	4.62	3.61	9.14	6.29	12.000	.313	6.000	.438
13 X 7.50	113.61	45.00	420.42	5.62	3.77	9.48	6.45	12.500	.313	5.000	.438
12 X 7.62	109.46	42.19	407.77	4.90	3.73	9.62	6.49	12.000	.313	7.500	.375
13 X 7.60	114.50	47.57	442.27	5.10	3.39	9.36	6.65	12.500	.313	7.500	.375
13 X 7.98	114.63	48.30	454.42	5.13	3.96	9.29	6.86	12.500	.313	6.000	.500
13 X 7.39	119.55	49.39	484.02	5.29	4.35	9.70	6.61	13.000	.313	7.500	.375
13 X 8.16	119.91	51.39	494.61	5.32	4.12	9.63	6.95	13.000	.313	5.000	.500
14 X 8.17	124.61	52.44	525.95	5.49	4.22	10.03	6.96	13.500	.313	7.500	.375
14 X 8.35	125.00	53.91	530.74	5.52	4.29	9.90	7.11	13.500	.313	6.000	.500
12 X 8.41	112.53	52.50	456.43	5.08	4.36	8.69	7.10	12.000	.313	6.000	.438
13 X 8.59	117.09	55.19	497.80	5.29	4.23	9.32	7.32	12.500	.313	9.000	.438
13 X 8.70	122.87	57.91	541.18	5.49	4.40	9.32	7.48	13.000	.313	8.000	.438
14 X 8.96	126.07	50.56	500.00	5.69	4.56	9.67	7.53	13.500	.313	9.000	.438
12 X 8.97	114.17	57.54	467.60	5.19	4.27	8.48	7.54	12.600	.313	8.000	.500
13 X 9.15	119.41	50.44	531.71	5.39	4.45	8.80	7.80	12.500	.313	8.000	.500
13 X 9.34	124.67	53.68	577.73	5.60	4.03	9.12	7.95	13.600	.313	8.000	.500
14 X 9.52	129.94	56.55	625.66	5.60	4.62	9.43	8.11	13.500	.313	8.000	.500

14.0 IN. EFFECTIVE WIDTH
 .675 IN. PLATE (AREA=12.25 SQ. IN.)

NUM. 3 X LB/FT	ZPL	ZFL	INERTIA	N	YP	YF	BEAM DIMENSIONS			TF	SHEAR AREA	MAX. SPAN
							AREA	D	TH			
2 X .50	2.22	.58	1.09	.29	.49	1.89	.43	1.500	.125	.125	.125	53.2
2 X .58	3.64	.78	1.80	.38	.51	2.37	.49	2.000	.125	.125	.125	49.3
3 X .55	5.41	1.01	2.88	.47	.53	2.84	.55	2.500	.125	.125	.125	47.3
3 X .72	7.52	1.26	4.16	.57	.56	3.32	.62	3.000	.125	.125	.125	45.8
3 X .72	8.16	1.19	3.36	.51	.54	2.83	.62	2.500	.125	.125	.125	42.5
3 X .80	8.47	1.46	4.80	.61	.57	3.30	.68	3.000	.125	.125	.125	48.5
4 X .67	11.10	1.76	8.66	.72	.60	3.78	.74	3.500	.125	.125	.125	57.9
4 X .84	14.01	2.08	8.83	.82	.63	4.24	.80	4.000	.125	.125	.125	56.6
5 X 1.12	17.19	2.42	11.40	.93	.60	4.71	.87	4.500	.125	.125	.125	55.6
5 X 1.09	20.60	2.78	14.38	1.04	.70	5.18	.93	5.000	.125	.125	.125	54.0
4 X 1.13	17.00	2.76	11.59	.94	.68	4.19	.97	4.000	.125	.160	.160	70.1
5 X 1.21	24.21	3.16	17.79	1.16	.73	5.64	1.03	5.500	.125	.125	.125	53.7
5 X 1.20	24.36	3.02	16.51	1.08	.72	5.12	1.09	5.000	.125	.160	.160	68.7
5 X 1.35	28.32	4.08	22.72	1.30	.80	5.57	1.15	5.500	.125	.160	.160	67.5
5 X 1.50	22.34	4.37	17.83	1.14	.80	4.98	1.36	4.000	.125	.220	.220	86.5
5 X 1.57	26.57	4.98	22.50	1.28	.85	4.53	1.42	4.500	.125	.220	.220	96.4
5 X 1.77	33.45	5.92	29.79	1.48	.89	5.98	1.43	5.000	.160	.160	.160	65.5
7 X 1.74	30.90	5.54	27.93	1.43	.94	6.43	1.48	5.000	.160	.220	.220	94.5
7 X 1.77	37.00	6.27	35.00	1.61	.96	7.42	1.51	6.500	.160	.220	.220	84.6
8 X 1.62	35.49	6.13	33.95	1.57	.96	7.42	1.55	5.500	.160	.220	.220	93.0
7 X 1.60	42.26	6.47	42.19	1.75	1.00	8.48	1.59	7.000	.160	.160	.160	63.8
7 X 1.68	37.12	6.73	35.88	1.61	.97	6.91	1.61	6.500	.160	.190	.190	78.4
7 X 1.98	41.08	7.46	42.71	1.75	1.02	8.95	1.69	6.500	.160	.190	.190	77.4
7 X 2.07	46.33	7.54	50.28	1.89	1.09	9.79	1.77	7.000	.160	.220	.220	70.4
5 X 2.13	40.59	8.09	42.73	1.74	1.12	8.26	1.82	6.000	.160	.220	.220	91.6
7 X 2.22	44.36	8.09	50.00	1.89	1.12	8.26	1.90	6.500	.160	.220	.220	90.4
7 X 2.32	58.20	8.38	59.39	2.04	1.18	9.09	1.98	7.000	.160	.250	.250	89.3
5 X 2.50	45.27	9.23	54.14	1.94	1.23	8.68	2.18	6.000	.160	.250	.250	119.0
7 X 2.55	55.38	10.47	63.90	2.10	1.27	9.10	2.26	6.500	.160	.250	.250	117.3
8 X 3.10	66.68	12.92	89.25	2.45	1.35	10.90	2.64	7.000	.190	.250	.250	115.8
5 X 3.21	56.03	13.10	84.45	2.30	1.36	9.45	2.74	6.000	.190	.250	.250	114.5
7 X 3.38	55.95	14.40	94.45	2.61	1.42	10.45	2.80	6.000	.190	.313	.313	113.3
7 X 3.47	61.23	15.06	98.18	2.54	1.50	10.27	2.90	7.000	.190	.313	.313	145.8
5 X 3.82	60.02	17.42	115.05	2.73	1.54	10.64	3.26	7.500	.190	.313	.313	143.5
8 X 3.94	72.02	18.79	132.24	2.91	1.64	12.04	3.35	8.000	.220	.313	.313	141.8
5 X 4.34	77.42	20.60	153.69	3.10	1.99	12.39	3.70	8.500	.220	.313	.313	140.2
7 X 4.47	82.84	22.69	173.40	3.29	2.09	13.78	3.81	9.000	.220	.313	.313	138.7
10 X 4.53	88.27	23.82	194.01	3.47	2.20	14.17	3.92	9.500	.220	.313	.313	137.4
9 X 4.76	79.34	23.05	171.06	3.24	2.14	12.23	4.00	8.500	.220	.375	.375	130.2
7 X 4.89	85.40	25.31	192.84	3.43	2.26	13.62	4.17	9.000	.220	.375	.375	138.7
10 X 5.02	93.00	27.01	210.07	3.62	2.37	14.00	4.28	9.500	.220	.375	.375	136.2
9 X 5.42	83.39	26.30	198.00	3.43	2.38	13.00	4.68	8.500	.220	.375	.375	160.4
10 X 5.53	96.48	29.54	245.92	3.81	2.55	15.33	4.73	10.000	.220	.375	.375	135.0
9 X 5.52	89.05	30.23	222.67	3.62	2.30	13.37	4.81	9.000	.220	.375	.375	176.5
11 X 5.04	102.03	31.37	272.94	4.00	2.68	16.74	4.84	10.500	.250	.375	.375	134.0
10 X 5.68	94.71	32.19	249.28	3.82	2.63	15.74	4.93	9.500	.250	.375	.375	170.8
11 X 5.79	107.56	33.24	301.56	4.19	2.80	19.07	4.93	11.000	.250	.375	.375	132.9

14.0 IN. EFFECTIVE WIDTH

.875 IN. PLATE (AREA=12.25 SQ. IN.)

NUM. O X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	D	TM		
10 X 5.32	98.77	32.86	268.15	3.94	2.72	8.16	3.05	10.000	.250	6.000	.438
11 X 6.37	134.40	34.87	297.32	4.13	2.85	8.53	3.17	10.500	.250	6.000	.438
10 X 6.16	130.32	34.97	281.98	4.01	2.81	8.60	3.25	10.000	.250	7.500	.375
11 X 6.21	110.04	36.91	328.19	4.32	2.98	8.89	3.50	11.000	.250	6.000	.438
11 X 6.30	105.99	37.07	312.39	4.21	2.95	8.43	3.37	10.500	.250	7.500	.375
11 X 6.45	111.68	39.20	344.55	4.41	3.19	8.79	3.50	11.000	.250	7.500	.375
12 X 7.38	121.33	43.37	411.34	4.71	3.39	9.48	6.29	12.000	.313	6.000	.438
13 X 7.22	127.02	42.89	449.47	4.90	3.54	9.84	6.45	12.500	.313	5.000	.438
12 X 7.52	123.07	45.67	430.24	4.79	3.50	9.38	6.49	12.000	.313	7.500	.375
13 X 7.60	128.00	46.29	469.77	4.99	3.65	9.73	6.65	12.500	.313	7.500	.375
13 X 7.36	123.25	49.60	479.01	5.02	3.71	9.86	6.80	12.500	.313	5.000	.438
13 X 7.39	134.54	50.75	511.29	5.15	3.80	10.07	6.81	13.000	.313	7.500	.375
13 X 8.16	135.02	52.18	522.21	5.21	3.87	10.01	6.95	13.000	.313	6.000	.500
14 X 6.17	140.30	53.25	554.04	5.37	3.95	10.42	6.96	13.500	.313	7.500	.375
14 X 5.35	140.81	54.75	566.00	5.41	4.12	10.55	7.11	13.500	.313	5.000	.500
12 X 6.41	126.84	53.29	483.15	4.99	3.61	9.07	7.16	12.000	.313	8.000	.438
13 X 6.59	132.71	56.62	526.86	5.19	3.97	9.41	7.32	12.500	.313	8.000	.438
13 X 6.76	136.59	56.78	572.71	5.39	4.13	9.74	7.48	13.000	.313	8.000	.438
14 X 6.96	144.49	51.58	620.71	5.59	4.30	10.08	7.63	13.500	.313	8.000	.438
12 X 6.37	126.67	58.41	517.50	5.10	4.02	8.86	7.64	12.600	.313	8.000	.500
13 X 9.15	154.83	51.35	563.98	5.30	4.18	9.19	7.80	12.500	.313	8.000	.500
13 X 9.34	140.60	54.33	612.69	5.51	4.35	9.52	7.95	13.000	.313	8.000	.500
14 X 9.52	146.79	57.35	663.66	5.71	4.52	9.85	8.11	13.500	.313	8.000	.500

14.0 IN. EFFECTIVE WIDTH

1.600 IN. PLATE (AREA=14.00 SQ. IN.)

NUM. L X LB/FT	ZPL	ZFL	INERTIA	K	YF	YF	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
							AREA	D	IN	WF		
2 X .50	2.15	.50	1.16	.29	.55	1.95	.43	1.500	.125	2.000	.125	53.2
2 X .58	3.50	.61	1.95	.37	.57	2.43	.44	2.000	.125	2.000	.125	49.3
3 X .65	5.19	1.04	3.04	.40	.58	2.92	.55	2.500	.125	2.000	.125	47.3
3 X .72	7.23	1.29	4.39	.55	.61	3.39	.62	3.000	.125	2.000	.125	45.6
3 X .72	5.93	1.22	3.24	.59	.60	2.94	.62	2.500	.125	2.500	.125	61.7
3 X .80	6.18	1.50	5.06	.69	.65	3.38	.68	3.000	.125	2.500	.125	59.5
4 X .87	10.70	1.80	6.95	.69	.65	3.85	.74	3.500	.125	2.500	.125	57.9
4 X .94	13.05	2.12	9.19	.79	.67	4.33	.80	4.000	.125	2.500	.125	56.6
5 X 1.02	16.85	2.47	11.63	.89	.70	4.84	.87	4.500	.125	2.500	.125	55.0
5 X 1.09	20.29	2.83	14.89	.90	.73	5.27	.93	5.000	.125	2.500	.125	54.0
6 X 1.13	16.70	2.62	12.00	.90	.72	4.28	.97	4.000	.125	3.000	.160	70.1
6 X 1.16	23.99	3.21	16.39	1.11	.77	5.73	.99	5.500	.125	2.500	.125	53.7
5 X 1.21	24.40	3.24	15.37	1.01	.75	4.75	1.03	4.500	.125	3.000	.160	67.5
5 X 1.28	24.24	3.68	19.16	1.13	.79	5.21	1.09	5.000	.125	3.000	.160	66.5
5 X 1.35	28.40	4.14	23.49	1.25	.83	5.67	1.15	5.500	.125	3.000	.160	96.4
4 X 1.00	22.54	4.45	18.60	1.10	.83	4.17	1.36	4.000	.125	4.000	.220	63
5 X 1.37	20.95	5.07	23.47	1.23	.87	4.63	1.42	4.500	.125	4.000	.220	63
5 X 1.67	33.90	5.66	30.81	1.41	.91	5.09	1.43	6.000	.160	3.000	.160	1.12
5 X 1.74	31.50	5.70	26.99	1.37	.92	5.08	1.40	5.000	.160	3.000	.160	1.25
7 X 1.77	38.59	5.03	30.64	1.24	.95	6.55	1.51	6.500	.160	3.000	.160	1.20
6 X 1.32	36.39	6.36	35.16	1.50	.97	5.53	1.52	5.500	.160	4.000	.220	.81
7 X 1.86	43.37	6.23	43.55	1.07	1.00	7.00	1.59	7.000	.160	3.000	.160	1.28
5 X 1.88	38.05	6.17	37.14	1.54	.98	6.02	1.61	6.000	.160	3.500	.190	1.12
7 X 1.90	42.95	6.82	44.17	1.68	1.03	6.47	1.59	6.500	.160	3.500	.190	1.20
7 X 2.07	47.98	7.51	51.94	1.82	1.04	6.92	1.77	7.000	.160	3.500	.190	1.28
5 X 2.13	42.01	7.45	44.28	1.07	1.05	5.95	1.82	6.000	.160	4.000	.220	1.12
7 X 2.22	47.16	8.21	52.44	1.62	1.11	6.39	1.90	6.500	.160	4.000	.220	1.20
7 X 2.32	52.43	9.00	61.43	1.96	1.17	6.93	1.98	7.000	.160	4.000	.220	1.20
5 X 2.56	47.40	9.07	50.23	1.60	1.16	5.82	2.18	6.000	.160	5.000	.250	1.12
7 X 2.65	52.95	10.61	66.29	2.02	1.25	6.25	2.26	6.500	.160	5.000	.250	1.20
8 X 3.10	54.51	13.09	92.49	2.30	1.43	7.07	2.64	7.500	.190	5.000	.250	1.62
9 X 3.21	70.23	14.17	106.13	2.52	1.51	7.49	2.74	8.000	.190	5.000	.250	1.71
5 X 3.28	53.63	13.55	74.87	2.11	1.39	5.61	2.80	6.000	.190	5.000	.313	1.12
7 X 3.50	59.70	14.59	87.93	2.26	1.47	6.03	2.88	6.500	.190	5.000	.313	1.20
7 X 3.47	65.04	15.85	102.15	2.45	1.56	6.44	2.96	7.000	.190	5.000	.313	1.24
8 X 3.82	71.70	17.64	120.35	2.64	1.68	6.82	3.26	7.500	.190	5.000	.313	1.62
8 X 3.94	77.72	19.02	137.53	2.82	1.77	7.23	3.35	8.000	.220	5.000	.313	1.71
8 X 4.34	83.84	21.06	159.92	3.01	1.91	7.59	3.70	8.500	.220	5.000	.313	2.09
9 X 4.47	89.91	22.57	180.42	3.18	2.01	7.99	3.81	9.000	.220	5.000	.313	2.20
11 X 4.53	95.99	24.11	202.34	3.36	2.11	8.39	3.92	9.500	.220	5.000	.313	2.31
9 X 4.76	86.95	23.55	176.35	3.14	2.05	7.45	4.06	8.500	.220	5.000	.375	2.09
9 X 4.89	93.13	25.63	210.96	3.33	2.16	7.84	4.17	9.000	.220	5.000	.375	2.20
10 X 5.02	99.34	27.54	225.59	3.51	2.27	8.23	4.28	9.500	.220	5.000	.375	2.31
9 X 5.42	31.20	26.85	257.12	3.34	2.27	7.23	4.50	10.000	.250	5.000	.375	2.09
10 X 5.50	135.54	29.91	256.35	3.70	2.43	8.57	4.66	10.000	.250	7.500	.375	2.75
9 X 5.55	97.54	30.80	232.93	3.53	2.39	7.61	4.73	9.000	.250	7.500	.375	2.20
11 X 5.60	111.77	31.76	284.45	3.89	2.55	8.95	4.81	10.500	.250	6.000	.375	2.80
10 X 5.08	113.90	32.56	266.42	3.72	2.51	7.95	4.84	9.500	.250	7.500	.375	2.31
11 X 5.79	118.00	33.85	314.22	4.07	2.66	9.34	4.93	11.000	.250	6.000	.375	3.00

14.0 IN. EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=14.00 SQ. IN.)

N/A. J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	J	IN	WF	TF
10 X 5.92	108.35	33.27	280.03	3.83	2.58	8.42	5.05	10.000	.250	5.000	.438
11 X 6.07	114.08	35.50	310.44	4.02	2.71	8.79	5.17	10.500	.250	5.000	.438
10 X 6.16	110.21	35.40	294.73	3.91	2.07	8.33	5.25	10.000	.250	7.500	.375
11 X 6.21	121.01	37.36	342.55	4.21	2.83	9.17	5.30	11.000	.250	5.000	.438
11 X 6.30	116.58	37.52	326.43	4.11	2.80	8.70	5.37	10.500	.250	7.500	.375
11 X 6.45	122.96	39.67	359.95	4.30	2.33	9.07	5.50	11.000	.250	7.500	.375
12 X 7.38	133.08	43.95	430.01	4.80	3.22	9.78	6.29	12.000	.313	5.000	.438
13 X 7.58	140.05	46.31	489.83	4.79	3.35	10.15	6.45	12.500	.313	6.000	.438
12 X 7.62	135.73	46.48	450.12	4.69	3.32	9.88	6.49	12.000	.313	7.500	.375
13 X 7.80	142.19	48.93	491.42	4.88	3.46	10.04	6.55	12.500	.313	7.500	.375
13 X 7.98	142.73	50.32	522.26	4.91	3.52	9.98	6.80	12.500	.313	5.000	.500
13 X 8.10	149.58	51.42	534.82	5.07	3.60	10.40	6.81	13.000	.313	7.500	.375
14 X 8.17	155.02	52.08	546.59	5.11	3.88	10.34	6.95	13.000	.313	6.000	.500
14 X 8.35	155.07	55.48	553.88	5.30	3.74	10.76	6.98	13.500	.313	7.500	.375
12 X 8.41	140.20	53.99	506.82	4.89	3.01	9.39	7.11	13.500	.313	5.000	.500
13 X 8.59	146.84	55.75	552.59	5.09	3.78	9.74	7.32	12.500	.313	8.000	.438
13 X 8.76	153.42	59.55	600.80	5.29	3.91	10.09	7.40	13.000	.313	8.000	.438
14 X 8.98	160.01	52.39	650.87	5.48	4.07	10.43	7.63	13.500	.313	8.000	.438
12 X 8.97	142.74	59.18	543.88	5.01	3.81	9.19	7.64	12.000	.313	8.000	.500
13 X 9.15	149.41	52.18	592.80	5.21	3.97	9.53	7.80	12.500	.313	8.000	.500
13 X 9.34	156.08	55.18	643.88	5.41	4.12	9.88	7.95	13.000	.313	8.000	.500
14 X 9.52	162.77	58.23	697.14	5.62	4.28	10.22	8.11	13.500	.313	8.000	.500

TABLE 6
EFFECTIVE PLATING WIDTH = 16"
1/2" - 1" PLATE THICKNESSES

16.0 IN. EFFECTIVE WIDTH
 .500 IN. PLATE (AREA= 8.00 SQ. IN.)

NOM.	J X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	BEAM DIMENSION D	TF	SHEAR AREA	MAX. SPAN
2 X .50	2.66	.51	.85	.32	.32	1.68	.43	1.500	.125	2.000	.125	53.2
2 X .58	4.36	.70	1.52	.42	.35	2.15	.49	2.000	.125	2.000	.125	49.3
3 X .55	6.39	.92	2.42	.53	.36	2.02	.55	2.500	.125	2.000	.125	47.3
3 X .72	8.07	1.16	3.58	.64	.41	3.09	.62	3.000	.125	2.000	.125	45.8
3 X .80	9.24	1.08	2.82	.57	.43	2.60	.62	2.500	.125	2.500	.125	61.7
3 X .87	12.17	1.35	4.15	.69	.43	3.07	.68	3.000	.125	2.500	.125	59.5
4 X .37	12.17	1.64	5.79	.81	.48	3.52	.74	3.500	.125	2.500	.125	57.9
4 X .94	14.90	1.95	7.77	.94	.52	3.96	.80	4.000	.125	2.500	.125	56.6
5 X 1.02	17.65	2.28	10.10	1.07	.57	4.43	.87	4.500	.125	2.500	.125	55.6
5 X 1.09	20.85	2.63	12.83	1.20	.62	4.88	.93	5.000	.125	2.500	.125	54.6
5 X 1.13	17.24	2.00	10.16	1.06	.59	3.91	.97	4.000	.125	3.000	.160	70.1
5 X 1.16	23.51	2.39	13.90	1.33	.67	5.33	.99	5.500	.125	2.500	.125	53.7
5 X 1.21	20.34	3.31	13.10	1.21	.64	4.56	1.03	5.000	.125	3.000	.160	68.7
5 X 1.28	23.51	3.43	16.46	1.35	.70	4.80	1.09	5.500	.125	3.000	.160	67.5
5 X 1.35	20.72	3.86	20.32	1.49	.76	5.24	1.15	5.500	.125	3.000	.160	66.5
5 X 1.60	20.72	4.13	15.49	1.29	.75	3.75	1.36	4.000	.125	4.000	.220	98.7
5 X 1.67	24.12	4.73	19.77	1.45	.82	4.18	1.42	4.500	.125	4.000	.220	96.4
5 X 1.57	30.24	7.73	20.59	1.63	.88	5.02	1.43	6.000	.160	3.000	.160	65.5
5 X 1.74	27.55	5.35	24.62	1.61	.89	4.61	1.48	5.000	.125	4.000	.220	94.5
7 X 1.77	23.52	5.28	31.93	1.83	.95	6.05	1.51	6.500	.160	3.000	.160	64.6
5 X 1.62	31.01	5.96	30.69	1.78	.87	5.03	1.55	5.500	.125	4.000	.220	93.0
7 X 1.66	36.81	5.85	37.67	1.99	1.03	6.47	1.59	7.000	.160	3.000	.160	63.8
5 X 1.88	32.49	5.78	31.92	1.82	.98	5.52	1.61	6.000	.160	3.500	.190	78.4
7 X 1.98	32.60	6.42	38.12	1.98	1.06	5.94	1.69	6.500	.160	3.500	.190	77.4
7 X 2.07	39.25	7.68	44.98	2.15	1.15	6.35	1.77	7.000	.160	3.500	.190	76.4
6 X 2.13	34.48	7.00	37.83	1.96	1.10	5.40	1.82	6.000	.160	4.000	.220	91.6
7 X 2.22	37.35	7.74	44.99	2.13	1.19	5.81	1.86	6.500	.160	4.000	.220	90.4
7 X 2.32	41.42	8.50	52.88	2.30	1.28	6.22	1.98	7.000	.160	4.000	.220	89.3
6 X 2.50	30.96	9.11	47.51	2.16	1.29	5.21	2.16	6.000	.160	5.000	.250	119.0
7 X 2.65	46.55	10.02	56.25	2.34	1.39	5.61	2.26	6.500	.160	5.000	.250	117.3
7 X 2.75	47.15	10.96	62.84	2.52	1.49	6.01	2.34	7.000	.160	5.000	.250	115.8
6 X 3.10	47.66	12.37	78.59	2.72	1.65	6.35	2.64	7.500	.190	5.000	.250	114.5
5 X 3.21	51.24	13.42	90.38	2.90	1.76	6.74	2.74	8.000	.190	5.000	.250	113.3
5 X 3.26	59.48	12.59	62.65	2.40	1.57	4.93	2.80	6.000	.160	5.000	.313	140.0
7 X 3.36	43.22	13.60	73.21	2.59	1.69	5.31	2.80	6.500	.160	5.000	.313	145.6
7 X 3.47	46.97	15.03	85.38	2.79	1.82	5.68	2.90	7.000	.160	5.000	.313	143.5
6 X 3.84	54.36	18.14	100.49	2.99	2.09	6.01	3.26	7.500	.190	5.000	.313	141.8
5 X 4.34	58.53	19.94	133.57	3.38	2.30	6.70	3.35	8.000	.220	6.000	.313	140.2
3 X 4.47	61.77	21.39	120.93	3.27	2.44	7.06	3.81	9.000	.220	5.000	.313	137.4
11 X 4.60	65.52	22.86	109.50	3.77	2.59	7.41	3.92	9.500	.220	5.000	.313	136.2
9 X 4.76	59.25	22.67	147.59	3.50	2.49	6.51	4.06	8.500	.220	5.000	.375	139.7
9 X 5.02	60.89	24.29	160.59	3.70	2.64	6.86	4.17	9.000	.220	5.000	.375	137.4
19 X 5.42	60.77	27.15	169.07	3.60	2.77	6.23	4.62	9.500	.220	6.000	.375	136.2
9 X 5.50	70.72	28.31	212.26	4.09	3.00	7.50	4.68	10.000	.250	7.500	.375	180.4
9 X 5.64	94.08	29.03	190.52	3.67	2.84	6.56	4.73	10.000	.250	7.500	.375	178.5
11 X 5.64	74.57	30.07	235.74	4.29	3.16	7.84	4.81	9.500	.250	5.000	.375	173.0
11 X 5.68	68.80	30.93	213.37	4.08	3.10	6.90	4.84	9.500	.220	7.500	.375	150.8
11 X 5.79	76.42	31.87	260.02	4.49	3.32	8.18	4.93	11.000	.250	5.000	.375	132.9

16.0 IN. EFFECTIVE WIDTH
.500 IN. PLATE (AREA= 8.00 SQ. IN.)

NUM. U X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	----- BEAM DIMEN: IONS -----			SHEAR AREA	MAX. SPAN
							AREA	D	IF		
10 X 5.92	71.89	31.50	229.96	4.20	3.20	7.30	5.05	10.000	.250	6.000	.438
11 X 6.37	75.80	33.43	255.18	4.27	3.31	7.03	5.17	10.500	.250	5.000	.438
10 X 6.10	72.77	33.54	241.03	4.20	3.31	7.19	5.25	10.000	.250	7.500	.375
11 X 6.21	74.73	35.39	261.88	4.60	3.54	7.96	5.30	11.000	.250	5.000	.438
11 X 6.30	76.72	35.56	267.28	4.47	3.46	7.52	5.37	10.500	.250	7.500	.375
11 X 6.45	80.07	37.62	295.02	4.68	3.56	7.84	5.50	11.000	.250	7.500	.375
12 X 7.38	87.94	41.40	351.86	4.90	4.00	8.50	6.29	12.000	.313	6.000	.438
13 X 7.50	91.93	43.62	384.81	5.15	4.18	8.82	6.45	12.500	.313	5.000	.438
12 X 7.80	89.00	43.82	367.35	5.03	4.12	8.38	6.49	12.000	.313	7.500	.375
13 X 7.98	93.24	46.13	400.94	5.23	4.31	8.69	6.65	12.500	.313	7.500	.375
13 X 7.99	93.12	46.46	400.24	5.25	4.36	8.82	6.80	12.500	.313	5.000	.500
13 X 8.16	97.33	49.82	444.86	5.45	4.57	9.01	6.81	13.000	.313	7.500	.375
14 X 8.17	101.21	50.86	473.80	5.63	4.68	9.32	6.95	13.000	.313	6.000	.500
14 X 8.35	101.44	52.20	482.90	5.62	4.70	9.24	7.11	13.500	.313	7.500	.375
12 X 8.41	91.15	50.33	406.43	5.19	4.48	8.02	7.10	12.000	.313	5.000	.500
13 X 8.59	95.31	53.54	445.66	5.39	4.68	8.32	7.32	12.500	.313	8.000	.438
13 X 8.78	99.20	56.18	484.71	5.60	4.87	8.63	7.46	13.000	.313	8.000	.438
14 X 8.96	103.59	58.85	525.60	5.80	5.07	8.93	7.53	13.500	.313	8.000	.438
12 X 8.97	92.27	55.82	434.75	5.27	4.71	7.79	7.53	12.000	.313	8.000	.500
13 X 9.15	96.20	58.63	477.12	5.48	4.91	8.09	7.80	12.500	.313	8.000	.500
13 X 9.34	100.75	61.78	515.40	5.68	5.12	8.38	7.95	13.000	.313	8.000	.500
14 X 9.52	105.02	64.36	558.69	5.89	5.32	8.68	8.11	13.500	.313	8.000	.500

16.3 IN. EFFECTIVE WIDTH

.625 IN. PLATE (AREA=10.00 SQ. IN.)

MOM.		BEAM DIMENSIONS										SHEAR AREA	MAX. SPAN
J	X LB/FT	ZPL	ZFL	INERTIA	R	YP	YF	AREA	J	IN	WF	TF	
2	X .50	2.50	.53	.33	.30	.37	1.75	.43	1.500	.125	2.000	.125	.27
2	X .58	4.14	.73	1.63	.39	.39	2.23	.49	2.000	.125	2.000	.125	.33
3	X .65	6.14	.95	3.29	.49	.45	3.18	.52	2.500	.125	2.000	.125	.39
3	X .72	8.46	1.19	5.79	.60	.45	3.18	.62	3.000	.125	2.000	.125	.45
3	X .72	6.91	1.12	3.01	.53	.44	2.09	.62	2.500	.125	2.500	.125	.39
3	X .80	9.42	1.39	4.70	.64	.47	3.16	.58	3.000	.125	2.500	.125	.45
4	X .87	12.20	1.68	6.10	.75	.50	3.62	.74	3.500	.125	2.500	.125	.52
4	X .94	15.21	2.00	8.16	.87	.54	4.09	.81	4.000	.125	2.500	.125	.58
5	X 1.02	18.42	2.33	10.59	.99	.58	4.55	.87	4.500	.125	2.500	.125	.64
5	X 1.09	21.78	2.68	13.42	1.11	.62	5.01	.93	5.000	.125	2.500	.125	.70
4	X 1.13	17.97	2.36	10.70	.99	.60	4.03	.97	4.000	.125	3.000	.160	.58
5	X 1.18	25.20	3.05	16.07	1.23	.56	5.47	.99	5.000	.125	2.500	.125	.77
5	X 1.21	21.47	3.07	13.76	1.12	.64	4.48	1.03	4.500	.125	3.000	.160	.64
5	X 1.28	25.10	3.50	17.28	1.25	.69	4.94	1.09	5.000	.125	3.000	.160	.70
5	X 1.35	28.84	3.95	21.29	1.39	.74	5.39	1.15	5.500	.125	3.000	.160	.77
4	X 1.40	22.49	4.22	16.42	1.20	.73	3.90	1.30	4.000	.125	4.000	.220	.58
5	X 1.57	26.45	4.82	20.89	1.35	.79	4.34	1.42	4.500	.125	4.000	.220	.64
5	X 1.67	33.24	5.42	27.90	1.50	.84	5.79	1.43	5.000	.160	3.000	.160	1.06
5	X 1.74	30.49	5.44	25.98	1.50	.85	4.77	1.48	5.000	.125	4.000	.220	.70
7	X 1.77	37.16	5.38	33.48	1.71	.90	6.22	1.51	6.500	.160	3.000	.160	1.14
7	X 1.82	34.00	5.99	31.70	1.60	.92	5.21	1.55	5.500	.125	4.000	.220	.77
7	X 1.86	41.11	5.96	39.89	1.85	.97	6.06	1.59	7.000	.160	3.000	.160	1.22
6	X 1.38	36.21	5.89	33.57	1.70	.93	5.70	1.61	6.000	.160	3.500	.190	1.06
7	X 1.98	40.20	6.55	40.00	1.85	1.00	6.13	1.61	6.500	.160	3.500	.190	1.14
7	X 2.07	44.35	7.20	47.25	2.00	1.07	6.56	1.77	7.000	.160	3.500	.190	1.22
5	X 2.13	38.91	7.13	39.91	1.84	1.03	5.60	1.62	6.000	.160	4.000	.220	1.06
7	X 2.22	43.09	7.87	47.43	2.00	1.10	6.02	1.90	6.500	.160	4.000	.220	1.14
7	X 2.32	47.36	8.64	55.72	2.16	1.18	6.45	1.96	7.000	.160	4.000	.220	1.22
6	X 2.50	42.68	9.27	50.39	2.03	1.19	5.44	2.16	6.000	.160	5.000	.250	1.06
7	X 2.65	46.74	10.19	59.81	2.21	1.28	5.85	2.26	6.500	.160	5.000	.250	1.14
7	X 2.75	51.11	11.14	69.72	2.38	1.30	6.26	2.34	7.000	.160	5.000	.250	1.22
6	X 3.10	55.47	12.59	83.37	2.57	1.50	6.62	2.64	7.500	.190	5.000	.250	1.24
5	X 3.21	59.84	13.05	95.84	2.74	1.60	7.02	2.74	8.000	.190	5.000	.250	1.33
5	X 3.28	46.07	12.81	68.46	2.28	1.44	5.18	2.80	6.000	.160	5.000	.313	1.06
7	X 3.38	50.03	14.03	78.26	2.47	1.55	5.50	2.88	6.500	.160	5.000	.313	1.14
7	X 3.47	55.19	15.27	91.21	2.65	1.55	5.97	2.96	7.000	.160	5.000	.313	1.22
5	X 3.62	59.00	16.39	107.49	2.85	1.60	6.32	3.26	7.500	.190	5.000	.313	1.33
6	X 3.34	64.23	18.34	123.05	3.04	1.42	6.71	3.35	8.000	.190	5.000	.313	1.54
9	X 4.34	68.09	20.29	142.95	3.23	2.08	7.04	3.70	8.500	.220	5.000	.313	1.64
9	X 4.47	73.25	21.77	161.51	3.42	2.20	7.42	3.81	9.000	.220	5.000	.313	2.01
10	X 4.80	77.82	23.27	181.36	3.61	2.33	7.79	3.92	9.500	.220	5.000	.313	2.12
9	X 4.76	70.43	23.08	158.62	3.50	2.25	6.87	4.00	8.500	.220	5.000	.375	2.01
9	X 4.69	75.08	24.72	174.99	3.55	2.38	7.24	4.17	9.000	.220	5.000	.375	2.12
10	X 5.02	79.73	26.39	200.74	3.75	2.52	7.61	4.28	9.500	.220	5.000	.375	2.23
9	X 5.42	72.04	27.63	162.79	3.54	2.51	6.62	4.62	8.500	.220	7.500	.375	2.01
10	X 5.50	64.30	28.84	228.31	3.94	2.71	7.92	4.68	10.000	.250	6.000	.375	2.66
9	X 5.25	77.58	29.59	205.90	3.74	2.65	6.97	4.73	9.000	.220	7.500	.375	2.12
11	X 5.64	63.96	30.64	253.56	4.14	2.35	8.27	4.81	10.500	.250	5.000	.375	2.78
10	X 5.68	62.35	31.47	230.53	3.94	2.80	7.33	4.84	9.500	.220	7.500	.375	2.23
11	X 5.79	93.02	32.46	260.32	4.33	2.99	8.53	4.93	11.000	.250	5.000	.375	2.91

16.0 IN. EFFECTIVE WIDTH

.625 IN. PLATE (AREA=10.00 SQ. IN.)

NOM. J X LB/FT	ZFL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	Q	TF		
10 X 5.92	35.91	32.09	240.24	4.06	2.89	7.74	5.05	10.000	.250	6.000	.438
11 X 6.37	30.05	34.06	275.44	4.29	3.34	8.09	5.17	10.500	.250	6.000	.438
10 X 6.16	27.07	34.16	260.08	4.14	2.99	7.03	5.25	10.000	.250	7.500	.375
11 X 6.21	25.39	30.30	314.22	4.40	3.19	8.44	5.30	11.000	.250	6.000	.438
11 X 6.30	21.84	30.22	269.00	4.34	3.15	7.98	5.37	10.500	.250	7.500	.375
11 X 6.45	26.62	30.32	318.90	4.54	3.50	8.32	5.50	11.000	.250	7.500	.375
12 X 7.38	104.98	42.30	360.06	4.83	3.03	9.00	6.29	12.000	.313	6.000	.438
13 X 7.50	109.79	44.58	410.11	5.03	3.79	9.33	6.45	12.500	.313	6.000	.438
12 X 7.02	106.33	44.76	397.09	4.91	3.74	8.88	6.49	12.000	.313	7.500	.375
13 X 7.80	111.18	47.13	434.40	5.11	3.31	9.22	6.85	12.500	.313	7.500	.375
13 X 7.98	111.45	48.45	443.22	5.14	3.38	9.15	6.80	12.500	.313	6.000	.500
13 X 7.49	116.03	49.53	472.90	5.30	4.08	9.55	6.81	13.000	.313	7.500	.375
14 X 8.16	116.34	50.92	462.56	5.33	4.15	9.48	6.95	13.000	.313	6.000	.500
14 X 8.17	121.90	51.97	513.41	5.50	4.25	9.88	6.90	13.500	.313	7.500	.375
14 X 8.35	121.29	53.42	523.61	5.53	4.32	9.60	7.11	13.500	.313	6.000	.500
12 X 8.41	109.13	52.02	444.74	5.09	4.09	8.55	7.16	12.000	.313	8.000	.438
13 X 8.59	114.11	54.19	465.21	5.29	4.25	8.87	7.32	12.500	.313	8.000	.438
13 X 8.78	119.39	57.39	527.60	5.49	4.43	9.19	7.40	13.000	.313	8.000	.438
14 X 8.96	124.09	50.13	572.12	5.70	4.01	9.51	7.63	13.500	.313	8.000	.438
12 X 8.97	110.02	57.01	474.99	5.19	4.29	8.33	7.64	12.000	.313	8.000	.500
13 X 9.15	115.07	59.90	517.94	5.39	4.48	8.85	7.80	12.500	.313	8.000	.500
13 X 9.34	120.73	62.61	562.95	5.60	4.50	8.96	7.95	13.000	.313	8.000	.500
14 X 9.52	125.61	55.77	610.06	5.80	4.85	9.28	8.11	13.500	.313	8.000	.500

16.0 IN. EFFECTIVE WIDTH
.750 IN. PLATE (AREA=12.00 SQ. IN.)

NUM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	TF		
2 X .30	2.37	.55	1.01	.29	.43	1.82	.43	1.500	.125	.125	53.2
2 X .34	3.32	.76	1.75	.37	.49	2.30	.49	2.000	.125	.125	49.3
3 X .05	5.84	.98	2.73	.47	.55	2.78	.55	2.500	.125	.125	47.3
3 X .12	8.12	1.23	4.00	.50	.62	3.26	.62	3.000	.125	.125	45.8
3 X .15	6.63	1.15	3.19	.50	.58	2.77	.58	2.500	.125	.125	61.7
3 X .20	9.12	1.43	4.03	.60	.51	3.24	.51	3.000	.125	.125	59.5
4 X .37	11.93	1.72	6.40	.71	.54	3.71	.74	3.500	.125	.125	57.9
4 X .34	15.03	2.04	8.53	.82	.57	4.18	.80	4.000	.125	.125	56.6
5 X 1.32	18.38	2.34	11.04	.93	.60	4.65	.87	4.500	.125	.125	55.6
5 X 1.34	21.95	2.73	13.97	1.04	.64	5.11	.93	5.000	.125	.125	54.6
4 X 1.13	18.09	2.71	11.20	.93	.62	4.13	.97	4.500	.125	.125	70.1
5 X 1.16	25.72	3.11	17.32	1.13	.67	5.28	.99	5.000	.125	.125	53.7
5 X 1.21	21.83	3.13	14.36	1.05	.66	4.59	1.03	4.500	.125	.125	68.7
5 X 1.28	25.76	3.56	18.00	1.17	.70	5.05	1.09	5.000	.125	.125	67.5
5 X 1.35	23.80	4.32	22.13	1.30	.74	5.51	1.15	5.500	.125	.125	66.5
4 X 1.60	23.43	4.30	17.25	1.14	.74	4.01	1.30	4.000	.125	.125	98.7
5 X 1.07	27.79	4.91	21.89	1.28	.79	4.46	1.43	4.500	.125	.125	96.4
5 X 1.07	35.01	4.91	29.05	1.47	.83	5.92	1.43	5.000	.125	.125	65.5
5 X 1.74	32.25	5.53	27.17	1.42	.84	4.91	1.48	5.000	.125	.125	94.5
7 X 1.77	39.43	5.47	34.82	1.81	.88	6.37	1.51	6.500	.125	.125	64.6
5 X 1.82	30.91	6.13	33.10	1.55	.93	5.35	1.55	5.500	.125	.125	93.0
7 X 1.80	40.34	6.06	41.26	1.74	.94	6.81	1.59	7.000	.125	.125	63.8
6 X 1.88	38.01	5.99	35.00	1.60	.91	5.84	1.61	6.000	.125	.125	78.4
7 X 1.98	43.23	6.64	41.73	1.73	.97	6.28	1.69	6.500	.125	.125	77.4
7 X 2.17	47.92	7.32	49.19	1.89	1.03	6.72	1.77	7.000	.125	.125	70.4
6 X 2.13	41.99	7.24	41.70	1.74	.99	5.70	1.82	6.000	.125	.125	91.0
7 X 2.22	46.74	8.10	49.51	1.89	1.06	6.19	1.90	6.500	.125	.125	90.4
7 X 2.32	51.05	8.77	58.12	2.04	1.13	6.62	1.98	7.000	.125	.125	89.3
6 X 2.58	46.46	9.42	52.85	1.93	1.14	5.61	2.18	6.000	.125	.125	119.0
7 X 2.55	51.20	10.35	62.40	2.09	1.21	6.04	2.20	6.500	.125	.125	117.3
7 X 2.75	56.58	11.30	72.99	2.26	1.29	6.46	2.34	7.000	.125	.125	115.6
5 X 3.10	61.79	12.78	87.30	2.44	1.29	6.46	2.34	7.500	.125	.125	114.5
5 X 3.21	60.91	13.85	100.39	2.61	1.30	7.25	2.74	8.000	.125	.125	113.3
7 X 3.28	51.42	13.01	70.37	2.18	1.30	5.39	2.80	6.000	.125	.125	148.0
7 X 3.47	62.00	14.24	82.51	2.35	1.45	5.60	2.86	6.500	.125	.125	145.6
5 X 3.52	60.35	15.49	90.07	2.53	1.55	6.20	2.96	7.000	.125	.125	143.5
8 X 3.34	72.70	16.61	129.63	2.72	1.58	6.37	3.26	7.500	.125	.125	141.8
7 X 4.34	70.93	20.60	150.74	3.10	1.78	7.32	3.35	8.000	.125	.125	140.2
9 X 4.77	83.35	22.09	170.25	3.28	2.04	7.71	3.61	9.000	.125	.125	138.7
10 X 4.60	88.71	23.61	191.14	3.40	2.15	8.10	3.92	9.500	.125	.125	137.4
9 X 4.76	80.33	23.43	167.76	3.23	2.09	7.10	4.06	8.500	.125	.125	136.2
9 X 4.89	85.78	25.09	189.24	3.42	2.21	7.54	4.17	9.000	.125	.125	134.7
10 X 5.12	91.24	26.78	212.18	3.61	2.33	7.92	4.28	9.500	.125	.125	133.4
9 X 5.42	83.53	28.04	194.19	3.42	2.32	6.93	4.62	8.500	.125	.125	130.2
11 X 5.20	98.61	29.29	241.59	3.81	2.45	8.25	4.68	10.000	.125	.125	125.4
9 X 5.35	90.12	29.97	216.00	3.62	2.45	7.30	4.73	9.000	.125	.125	135.0
11 X 5.64	102.08	31.12	260.27	4.00	2.53	8.62	4.81	10.500	.125	.125	128.5
10 X 5.68	94.70	31.92	244.73	3.81	2.58	7.67	4.84	9.500	.125	.125	134.0
11 X 5.79	107.20	32.96	296.50	4.10	2.76	8.19	4.93	11.000	.125	.125	126.8
											132.9

16.0 IN. EFFECTIVE WIDTH
.750 IN. PLATE (AREA=12.00 SQ. IN.)

NOM. J X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	AREA	U	BEAM DIMENSIONS TW	MF	TF	SHEAR AREA	MAX. SPAN
10 X 5.92	98.74	32.59	263.38	3.93	2.07	8.08	5.05	10.000	.250	5.000	.438	2.69	135.0
11 X 6.07	104.29	34.59	296.19	4.13	2.60	8.45	5.17	10.500	.250	6.000	.438	2.61	134.0
10 X 6.16	100.20	34.60	276.96	4.01	2.76	7.99	5.25	10.000	.250	7.500	.375	2.69	175.2
11 X 6.21	109.85	36.62	322.69	4.32	2.94	8.81	5.30	11.000	.250	6.000	.438	2.94	132.9
11 X 6.35	102.69	36.77	306.99	4.20	2.90	8.55	5.37	10.500	.250	7.500	.375	2.61	173.6
11 X 6.45	111.40	38.90	336.76	4.40	3.04	8.71	5.20	11.000	.250	7.500	.375	2.94	172.4
12 X 7.38	120.91	43.63	404.60	4.70	3.35	9.40	6.29	12.000	.313	6.000	.438	3.39	131.0
13 X 7.50	126.51	45.55	442.33	4.90	3.50	9.75	6.45	12.500	.313	5.000	.438	4.15	130.1
12 X 7.62	122.57	45.52	423.24	4.76	3.42	9.50	6.49	12.000	.313	7.500	.375	3.99	169.9
13 X 7.80	128.21	47.93	462.30	4.98	3.61	9.84	6.65	12.500	.313	7.500	.375	4.15	166.8
13 X 7.99	133.67	49.29	472.13	5.01	3.67	9.58	6.80	12.500	.313	6.000	.500	4.15	130.1
13 X 8.16	134.50	50.38	503.34	5.17	3.76	9.99	6.81	13.000	.313	7.500	.375	4.30	167.7
13 X 8.17	134.50	51.80	514.03	5.21	3.83	9.42	6.95	13.000	.313	6.000	.500	4.30	129.2
14 X 8.35	139.53	52.67	540.38	5.37	3.92	10.33	6.96	13.500	.313	7.500	.375	4.46	166.7
14 X 8.35	140.00	54.36	557.97	5.40	3.99	10.26	7.11	13.500	.313	5.000	.500	4.46	128.4
12 X 8.41	126.13	52.90	475.16	4.98	3.77	8.98	7.16	12.000	.313	6.000	.438	3.99	163.2
13 X 8.59	131.91	55.51	518.32	5.18	3.93	9.32	7.32	12.500	.313	8.000	.438	4.15	182.0
13 X 8.78	137.70	58.37	565.05	5.38	4.19	9.66	7.49	13.000	.313	8.000	.438	4.30	163.8
14 X 8.90	143.50	61.16	611.10	5.56	4.26	9.99	7.63	13.500	.313	8.000	.438	4.46	173.7
12 X 8.97	128.03	57.98	505.84	5.09	3.97	8.78	7.84	12.000	.313	8.000	.500	3.99	183.2
13 X 9.15	133.90	60.92	554.70	5.29	4.14	9.11	7.86	13.500	.313	8.000	.500	4.15	182.0
13 X 9.34	139.78	63.69	602.89	5.50	4.31	9.44	7.95	13.000	.313	8.000	.500	4.30	160.8
14 X 9.52	145.07	66.89	653.20	5.70	4.48	9.77	8.11	13.500	.313	8.000	.500	4.46	173.7

AD-A031 490

NAVAL SHIP ENGINEERING CENTER HYATTSVILLE MD
PROPERTIES OF COMBINED ALUMINUM TEE EXTRUSION AND PLATE, (U)
AUG 76 P WITHERELL, E ARONNE
NAVSEC-6114-142-76

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16.0 IN. EFFECTIVE WIDTH

.875 IN. PLATE (AREA=14.00 SQ. IN.)

NOM. D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
							AREA	U	IF		
2 X .50	2.26	.58	1.09	.28	.48	1.89	.43	1.500	.125	.125	53.2
2 X .58	3.72	.79	1.86	.36	.50	2.37	.49	2.000	.125	.125	49.3
3 X .65	5.50	1.01	2.09	.45	.52	2.85	.55	2.500	.125	.125	47.3
3 X .72	7.70	1.26	4.25	.54	.54	3.33	.62	3.000	.125	.125	45.8
3 X .72	6.35	1.19	3.30	.48	.53	2.84	.62	2.500	.125	.125	61.7
3 X .80	8.70	1.47	4.87	.58	.58	3.32	.58	3.000	.125	.125	53.5
4 X .37	11.54	1.76	6.73	.67	.58	3.79	.74	3.500	.125	.125	57.9
4 X .37	11.54	2.06	8.89	.71	.61	4.27	.80	4.000	.125	.125	56.6
5 X 1.12	18.03	2.42	11.46	.88	.64	4.74	.87	4.500	.125	.125	55.6
5 X 1.19	21.70	2.77	14.48	.98	.67	5.21	.93	5.000	.125	.125	54.0
6 X 1.13	17.88	2.77	11.88	.88	.65	4.22	.97	4.000	.125	.125	70.1
6 X 1.16	25.61	3.16	17.93	1.09	.70	5.87	.99	5.500	.125	.125	53.7
5 X 1.21	21.74	3.18	14.93	1.00	.69	4.69	1.03	4.500	.125	.125	68.7
5 X 1.28	25.84	3.62	18.07	1.11	.72	5.15	1.09	5.000	.125	.125	67.5
6 X 1.35	33.10	4.08	22.92	1.23	.76	5.61	1.15	5.500	.125	.125	80.5
4 X 1.50	23.82	4.38	18.03	1.03	.76	4.12	1.36	4.000	.125	.125	98.7
5 X 1.57	28.44	4.59	22.82	1.22	.80	4.57	1.42	4.500	.125	.125	96.4
5 X 1.57	35.88	4.59	30.10	1.40	.84	5.04	1.43	5.000	.125	.125	65.5
5 X 1.74	35.27	5.62	28.20	1.35	.85	5.03	1.48	5.000	.125	.125	94.5
7 X 1.77	40.69	5.56	36.05	1.52	.89	5.49	1.51	6.500	.160	.160	64.6
6 X 1.82	39.27	6.15	34.37	1.49	.90	5.48	1.55	5.500	.125	.125	93.0
7 X 1.86	45.03	6.15	42.68	1.65	.94	6.94	1.59	7.000	.160	.160	63.8
5 X 1.88	40.03	6.58	36.31	1.33	.91	5.97	1.61	6.000	.160	.160	78.4
7 X 1.98	45.09	6.74	43.25	1.60	.96	6.42	1.69	6.500	.160	.160	77.4
7 X 2.07	50.27	7.42	50.93	1.80	1.01	6.80	1.77	7.000	.160	.160	76.4
5 X 2.13	44.00	7.35	43.32	1.65	.98	5.89	1.82	6.000	.160	.160	91.6
7 X 2.22	49.31	8.11	51.38	1.80	1.04	6.33	1.90	6.500	.160	.160	90.4
7 X 2.32	54.71	8.90	60.26	1.94	1.10	6.77	1.98	7.000	.160	.160	89.3
5 X 2.56	49.41	9.25	55.04	1.84	1.11	5.76	2.18	6.000	.160	.160	119.0
7 X 2.59	55.03	10.49	64.98	2.00	1.18	6.19	2.26	6.500	.160	.160	117.3
7 X 2.75	60.73	11.45	75.88	2.15	1.25	6.63	2.34	7.000	.160	.160	115.8
6 X 3.10	68.75	12.90	90.87	2.34	1.36	7.01	2.54	7.500	.190	.190	114.5
5 X 3.21	72.55	14.03	104.37	2.50	1.44	7.44	2.74	8.000	.190	.190	113.3
5 X 3.28	55.63	13.19	73.32	2.09	1.32	5.56	2.80	6.000	.160	.160	148.0
7 X 3.38	61.61	14.43	86.24	2.26	1.40	5.98	2.88	6.500	.160	.160	145.8
7 X 3.77	67.04	15.69	100.32	2.43	1.48	6.39	2.96	7.000	.160	.160	143.5
8 X 3.82	73.75	17.47	118.30	2.62	1.58	6.77	3.26	7.500	.190	.190	141.8
6 X 3.94	79.83	18.85	135.32	2.79	1.70	7.18	3.35	8.000	.190	.190	140.2
5 X 4.47	85.90	20.88	157.47	2.98	1.83	7.54	3.70	8.500	.220	.220	139.7
9 X 4.57	92.00	22.38	177.79	3.16	1.93	7.94	3.81	9.000	.220	.220	137.4
10 X 4.60	98.21	23.92	199.54	3.34	2.03	8.34	3.92	9.500	.220	.220	136.2
5 X 4.76	96.95	23.74	175.06	3.12	1.97	7.43	4.08	8.500	.220	.220	135.7
5 X 4.59	95.16	25.41	190.07	3.30	2.08	7.79	4.17	8.500	.220	.220	134.7
10 X 5.02	101.43	27.12	222.01	3.49	2.19	8.19	4.28	9.500	.220	.220	134.2
9 X 5.22	93.04	26.41	204.04	3.31	2.19	7.13	4.52	8.500	.220	.220	130.4
10 X 5.50	107.02	29.68	252.99	3.68	2.35	8.52	4.68	10.000	.250	.250	128.0
9 X 5.55	99.42	30.35	229.04	3.50	2.31	7.57	4.73	9.000	.220	.220	178.5
11 X 5.54	113.37	31.53	280.88	3.86	2.47	8.91	4.81	10.500	.250	.250	178.0
10 X 5.68	105.82	32.34	256.92	3.69	2.43	7.95	4.84	9.500	.220	.220	176.3
11 X 5.79	120.13	33.41	310.45	4.05	2.58	9.29	4.93	11.000	.250	.250	132.9

16.0 IN. EFFECTIVE WIDTH
 .875 IN. PLATE (AREA=14.00 SQ. IN.)

NOM. D X LB/FT	ZFL	ZFL	R	YF	YF	BEAM DIMENSIONS			SHEAR AREA	MAX. SPAN
						AREA	U	TF		
10 X 5.32	110.32	33.02	3.01	2.51	8.37	9.35	10.000	.250	5.000	.438
11 X 6.07	110.67	35.04	4.00	2.03	8.75	5.17	10.500	.250	5.000	.438
12 X 6.16	112.12	35.14	3.89	2.59	8.28	5.25	10.000	.250	7.500	.375
11 X 6.21	113.33	37.10	4.19	2.75	9.12	5.30	11.000	.250	5.000	.438
11 X 6.30	118.53	37.25	4.08	2.72	8.65	5.37	10.500	.250	7.500	.375
11 X 6.45	120.94	39.40	4.27	2.85	9.03	5.50	11.000	.250	7.500	.375
12 X 7.36	135.00	43.56	4.50	3.13	9.74	0.29	12.000	.313	6.000	.438
13 X 7.56	142.04	46.01	4.77	3.27	10.10	0.49	12.500	.313	5.000	.438
12 X 7.62	137.66	40.18	4.60	3.23	9.04	0.49	12.000	.313	7.500	.375
13 X 7.80	144.04	48.63	4.85	3.37	10.00	0.65	12.500	.313	7.500	.375
13 X 7.89	150.34	50.01	4.89	3.44	9.94	0.80	12.500	.313	6.000	.500
13 X 8.16	151.12	52.56	5.04	3.52	10.36	0.81	13.000	.313	7.500	.375
14 X 8.17	156.99	53.04	5.08	3.58	10.29	0.95	13.000	.313	6.000	.500
14 X 8.35	157.61	55.15	5.24	3.60	10.71	0.96	13.500	.313	7.500	.375
12 X 8.41	142.05	53.05	5.27	3.73	10.05	7.11	13.500	.313	5.000	.500
13 X 8.59	148.04	50.41	4.87	3.53	9.35	7.16	12.000	.313	8.000	.438
13 X 8.70	155.23	59.20	5.00	3.68	9.70	7.32	12.500	.313	8.000	.438
14 X 8.96	161.84	52.03	5.26	3.33	10.34	7.48	13.000	.313	9.000	.438
12 X 8.97	144.43	58.81	5.46	3.98	10.39	7.63	13.500	.313	8.000	.438
13 X 9.15	151.11	51.79	4.99	3.73	9.15	7.64	12.000	.313	8.000	.500
13 X 9.34	157.81	54.80	5.19	4.04	9.49	7.80	12.500	.313	8.000	.500
14 X 9.52	164.51	57.85	5.39	4.20	10.18	7.95	13.000	.313	8.000	.500
			5.59			8.11	13.500	.313	8.000	.500

16.0 IN. EFFECTIVE WIDTH
1.000 IN. PLATE (AREA=16.00 SQ. IN.)

NOM. D X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS				SHEAR AREA	MAX. SPAN
							AREA	0	TH	WF	TF	
2 X .50	2.18	.60	1.18	.27	.54	1.96	.43	1.500	.125	2.000	.125	53.2
2 X .58	3.56	.61	1.98	.35	.56	2.44	.49	2.000	.125	2.000	.125	49.3
3 X .65	5.31	1.04	3.05	.43	.57	2.93	.55	2.500	.125	2.000	.125	47.3
3 X .72	7.42	1.29	4.40	.51	.59	3.41	.62	3.000	.125	2.000	.125	45.8
3 X .72	6.08	1.22	3.56	.46	.59	2.91	.52	2.500	.125	2.000	.125	61.7
3 X .80	8.42	1.50	5.10	.55	.61	3.39	.68	3.000	.125	2.500	.125	59.5
4 X .37	11.11	1.80	6.99	.65	.63	3.67	.74	3.500	.125	2.500	.125	56.6
4 X .39	14.16	2.13	9.25	.74	.65	4.32	.80	4.000	.125	2.500	.125	56.6
5 X 1.02	17.54	2.47	11.90	.84	.68	4.82	.87	4.500	.125	2.500	.125	55.6
5 X 1.09	21.22	2.83	14.99	.94	.71	5.29	.93	5.000	.125	2.500	.125	54.6
4 X 1.13	17.51	2.82	12.14	.85	.69	4.31	.97	4.000	.125	3.000	.100	70.1
6 X 1.21	25.19	3.21	18.52	1.04	.74	5.76	.99	5.500	.125	2.500	.125	53.7
5 X 1.25	21.39	3.24	15.49	.95	.72	4.78	1.03	4.500	.125	3.000	.160	68.7
6 X 1.35	25.27	3.68	19.32	1.06	.76	5.24	1.09	5.000	.125	3.000	.160	67.5
4 X 1.60	24.85	4.46	18.78	1.17	.79	5.71	1.15	5.500	.125	3.000	.160	66.5
5 X 1.67	28.03	5.00	23.71	1.17	.83	6.07	1.36	6.000	.125	4.000	.220	98.7
5 X 1.74	33.07	5.07	31.11	1.34	.80	6.14	1.42	6.500	.125	4.000	.220	96.4
7 X 1.77	41.22	5.04	37.21	1.29	.87	5.13	1.43	6.000	.160	3.000	.160	94.5
5 X 1.82	30.93	6.37	35.57	1.46	.90	6.60	1.51	6.500	.160	3.000	.160	64.6
7 X 1.86	46.48	6.24	44.00	1.42	.91	5.59	1.55	7.000	.125	4.000	.220	93.0
5 X 1.93	46.11	6.04	44.60	1.58	.95	7.05	1.59	7.000	.160	3.000	.160	63.8
7 X 2.07	51.07	7.52	52.55	1.46	.92	6.08	1.51	6.000	.160	3.500	.190	78.4
5 X 2.13	42.19	7.46	44.83	1.59	.97	6.53	1.59	6.500	.160	3.500	.190	77.4
7 X 2.22	50.89	8.23	53.11	1.72	1.02	6.98	1.77	7.000	.160	4.000	.220	91.6
7 X 2.32	56.73	9.01	62.23	1.66	1.10	6.90	1.93	6.500	.160	4.000	.220	90.0
5 X 2.50	51.44	9.59	57.07	1.77	1.11	5.89	1.98	7.000	.160	4.000	.220	89.3
7 X 2.65	57.54	10.63	67.33	1.92	1.17	6.33	2.18	6.000	.160	5.000	.250	115.0
7 X 2.75	63.76	11.50	78.50	1.92	1.17	6.33	2.20	6.500	.160	5.000	.250	117.3
6 X 3.10	70.53	13.12	94.05	2.07	1.23	6.77	2.34	7.000	.160	5.000	.250	115.8
6 X 3.21	70.93	14.21	107.96	2.25	1.33	7.17	2.04	7.500	.190	5.000	.250	114.5
6 X 3.28	58.87	13.37	76.29	2.40	1.40	7.00	2.74	8.000	.190	5.000	.250	113.3
7 X 3.38	65.43	14.02	89.62	2.01	1.30	5.70	2.80	6.000	.160	5.000	.313	148.0
7 X 3.47	72.08	15.89	104.15	2.18	1.37	6.13	2.88	6.500	.160	5.000	.313	145.6
8 X 3.62	78.95	17.69	122.84	2.34	1.44	6.50	2.96	7.000	.160	5.000	.313	143.5
8 X 3.94	85.71	19.37	140.42	2.53	1.56	6.94	3.26	7.500	.190	5.000	.313	141.8
9 X 4.34	92.06	21.13	163.48	2.69	1.64	7.36	3.35	8.000	.190	5.000	.313	140.2
9 X 4.47	99.49	22.65	184.50	2.80	1.70	7.74	3.70	8.500	.220	5.000	.313	138.7
10 X 4.60	106.35	24.20	200.29	3.05	1.85	8.15	3.81	9.000	.220	5.000	.313	137.4
9 X 4.76	90.33	24.03	162.76	3.02	1.90	7.60	3.92	9.500	.220	5.000	.313	130.2
9 X 4.99	113.31	25.72	205.91	3.37	1.99	8.01	4.06	8.500	.220	5.000	.375	138.7
10 X 5.02	113.30	27.44	230.71	3.37	2.09	8.41	4.17	9.000	.220	5.000	.375	137.4
9 X 5.42	101.37	28.75	212.79	3.21	2.10	7.40	4.28	9.500	.220	7.500	.375	136.2
10 X 5.50	117.33	30.04	263.08	3.57	2.24	8.76	4.68	10.000	.250	6.000	.375	135.0
9 X 5.55	108.23	30.71	239.37	3.40	2.21	7.79	4.68	9.000	.250	7.500	.375	128.5
11 X 5.04	124.35	31.91	292.01	3.75	2.35	9.15	4.81	10.500	.250	5.000	.375	134.0
10 X 5.08	115.73	32.70	267.70	3.58	2.31	8.19	4.84	9.500	.220	7.500	.375	170.8
11 X 5.79	131.39	33.61	322.66	3.93	2.46	9.54	4.93	11.000	.250	5.000	.375	132.9

16.0 IN. EFFECTIVE WIDTH

1.000 IN. PLATE (AREA=16.00 SQ. IN.)

NOM. U X LB/FT	ZPL	ZFL	INERTIA	K	YP	YF	BEAM DIMENSIONS			TF	SHEAR AREA	MAX. SPAN
							AREA	D	TH	WF		
11 X 5.32	120.65	35.42	207.69	3.70	2.39	8.61	5.05	10.000	.250	5.000	.436	135.0
11 X 6.16	127.79	35.46	319.22	3.88	2.50	9.00	5.17	10.500	.250	5.000	.436	134.0
11 X 6.33	122.82	35.55	303.30	3.78	2.47	8.53	5.25	10.000	.250	7.500	.375	175.2
11 X 6.33	134.33	37.54	352.40	4.07	2.01	9.39	5.34	11.000	.250	5.000	.436	132.9
11 X 6.33	130.01	37.09	336.02	3.97	2.58	8.92	5.37	10.500	.250	7.500	.375	173.6
11 X 6.33	137.21	39.66	370.04	4.15	2.70	9.30	5.30	11.000	.250	7.500	.375	172.4
12 X 7.36	149.19	44.22	443.45	4.40	2.37	10.33	5.29	12.000	.313	5.000	.436	131.0
13 X 7.36	150.35	46.00	484.67	4.65	3.10	10.40	6.45	12.500	.313	6.000	.436	130.1
12 X 7.32	151.55	45.76	464.57	4.54	3.37	9.93	6.49	12.000	.313	7.500	.375	169.9
13 X 7.36	158.77	49.24	507.37	4.73	3.20	10.31	6.62	12.500	.313	7.500	.375	168.6
13 X 7.36	159.48	50.64	518.49	4.77	3.25	10.25	6.80	12.500	.313	6.000	.375	166.1
13 X 7.36	160.30	51.75	522.35	4.92	3.33	10.07	6.81	13.000	.313	7.500	.375	167.7
13 X 9.16	166.75	53.23	565.80	4.90	3.39	10.01	6.95	13.000	.313	5.000	.500	129.2
14 X 8.17	173.24	54.31	599.55	5.11	3.46	11.04	6.96	13.500	.313	7.500	.375	160.7
14 X 8.35	174.03	55.85	613.08	5.12	3.52	10.98	7.11	13.500	.313	5.000	.500	128.4
12 X 8.41	156.60	54.32	564.53	4.76	3.34	9.66	7.16	12.000	.313	6.000	.438	183.2
13 X 8.59	164.24	57.11	572.06	4.95	3.48	10.02	7.32	12.500	.313	5.000	.438	182.0
13 X 8.78	171.64	59.94	621.93	5.15	3.62	10.38	7.48	13.000	.313	8.000	.438	180.8
14 X 8.95	179.35	62.80	674.17	5.34	3.77	10.73	7.63	13.500	.313	9.000	.438	179.7
12 X 8.97	159.77	54.55	563.92	4.88	3.53	9.47	7.54	12.000	.313	8.000	.500	183.2
13 X 9.15	167.26	52.55	614.61	5.08	3.07	9.63	7.60	12.500	.313	8.000	.500	182.0
13 X 9.34	174.77	55.60	667.72	5.28	3.62	10.14	7.95	13.000	.313	8.000	.500	180.6
14 X 9.52	182.26	58.69	723.38	5.48	3.97	10.53	8.11	13.500	.313	8.000	.500	179.7

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